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ABSTRACT

A study was made to identify and define a variety of educational placement alternatives with reference to the concept of restrictiveness and to match these educational settings with the cognitive, affective, and physical development of exceptional pupils. A profile of pupil characteristics was derived and validated on approximately 200 special education pupils placed in least restrictive environments in California. The efficacy of their functioning in those environments was evaluated. Based on the study results, a system was devised for predicting program membership, to obtain a set of possible least restrictive placements for a handicapped student. (DLS)

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LEAST RESTRICTIVE EDUCATIONAL ENVIRONMENT/PUPIL MATCH

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Prepared Under Grant No. 77-58-C Between the California State Department of Education and the Applied Research Consultants

August 15, 1978

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The full report is reproduced here in this form for distribution as a technical report under the grant, and in order to make complete findings available for others engaged in this research area. Results of this study are the sole responsibility of the investigators. Official endorsement of the California State Department of Education or Applied Research Consultants is not implied.

TABLE OF CONTENTS

List of Tables . . . . . .

SECTION	PAGE
BACKGROUND	1
Rationale for the Project	1
Problem to be Investigated	1
HISTORICAL OVERVIEW	4
Legal Basis	4
Related Research	6
Summary	8
METHODS	11
Questionnaire	11
Sample	12
STATISTICAL APPROACH	18
ANALYSIS	26
Descriptive Information	26
Age, Gender and Grade Level	26
Least Restrictive Environment Descriptors	33
Pupil Characteristic Description	
Principal Compnents Analysis	51
Cluster Analysis	63
Discriminant Analysis	66
Cross Validation	67
APPLICATION OF THE METHOD	75
Placement Survey	76
Profile Sheet	78
Profile Sheet	79
Group Membership Map	81
Group Descriptor List	82
SUMMARY	85
BIBLIOGRAPHY	86

LIST OF TABLES

NUMBER		PAGE
1	List of Participants in the Research Group . .	15
2	List of Participants in Verification Group . .	16
3	Summary of Surveys Returned for Research Group . .	27
4	Summary of Useable Surveys for Research Group . .	28
5	Summary of Useable Surveys for Verification Group .	29
6	Distribution of Pupils by Age	30
7	Distribution of Pupils by Gender	32
8	Distribution of Pupils by Grade Level . . .	32
9	Distribution of Pupils by Program	34
10	Distribution of Pupils by Type of School . . .	34
11	Distribution of Supportive Services Received . .	35
12	Number of Professionals and Volunteers in Classes .	36
13	Number of Pupils Enrolled in Program	38
14	Hours in Program	38
15	Days in School Per Year	39
16	Program Participation	39
17	Pupil's Instructional Grade Level	41
18	Pupil's Instructional Level in Handwriting . .	42
19	Pupil's Instructional Mode in Reading . . .	42
20	Pupil's Instructional Mode in Listening . . .	43
21	Pupil's Verbal Expressive Lanuage Level . . .	45
22	Pupil Imitates Speech Sounds	46
23	Pupil Speaks in ___ Sentences	46

LIST OF TABLES (cont'd.)

NUMBER		PAGE
24	Pupil's Primary Expressive Communication Mode	47
25	Pupil's Personality Orientation	47
26	Socializing with Others	48
27	Completion of Assignments	49
28	Behavior	50
29	Self-Care: Dressing Independently	52
30	Self-Care	53
31	Self-Care: Feed Independently	54
32	Pupil's Locomotion in School Setting	54
33	Pupil's Mobility Level in the School Setting	55
34	Intercorrelation Matrix	56
35	Principal Component Analysis	59
36	Discriminant Analysis	68
37	Percentages of Groups Assigned to Clusters	72
38	Standard Score Conversion	80

BACKGROUND

Rationale for the Project

The State of California's Master Plan for Special Education (A.B. 1250) defines the least restrictive alternative as the "placement of an individual with exceptional needs in any program(s) which promote maximum interaction with the regular school program in a manner beneficial to that pupil and pupils in the regular classroom." The federal law The Education for All the Handicapped Children Act of 1975 (P.L. 94-142) expands the definition of least restrictive environment in stating:

> To the maximum extent appropriate, handicapped children, including children in public or private institutions or other care facilities, are not handicapped, and that special classes, separate schooling, or other removal of handicapped children from the regular educational environment occurs only when the nature or severity of the handicap is such that in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. (P.L. 94-142, Sec. 612, 5, B, 1975)

The need to explore criteria used to determine the placement of individuals with exceptional needs from the ages of 3 to 21 years in the least restrictive educational environment is paramount if successful normalization experiences are to be established.

Problem to be Investigated

The primary focus of this study was directed at identifying and defining a variety of educational placement alternatives with reference to the concept of restrictiveness and to match these educational settings with the cognitive, affective and physical development of exceptional pupils. The major premise of this study was that successful mainstreaming

experiences can be facilitated by matching the appropriate least restrictive educational environment with identifiable behavioral and physical characteristics of exceptional pupils without indiscriminantly returning all exceptional pupils in special classes to regular classes.

The concept of least restrictive educational environment comprises various dimensions beyond the boundaries of the regular classroom. Time-hours, days, weeks, months and years-certainly influences the concept of restrictiveness. The location of the placement site and the accessibility of placement to normalization experiences in terms of type, frequency and duration of normal peer group associations provide additional dimensions to the concept of restrictiveness.

This study was aimed at identifying the various dimensions through the adaptation of Deno's (1970, p. 235) Cascade System of special education services applied to the Master Plan for Special Education. The following continuum of programs was identified and was applied to least restrictive educational alternatives:

1. Placement in the regular program with modification as needed.
2. Placement in the regular program with assignment to the watch and consult group.
3. Placement in the regular program with designated instruction and services.
4. Placement in the resource specialist program with or without designated instruction and services.
5. Placement in a special class or center with or without designated instruction and services.
6. Placement in State schools for the deaf, blind or nuerologically handicapped.
7. Placement in State hospital or non-public institution.

The preceeding continuum of special educational alternatives is certainly not intended to be all inclusive, but they do provide direction in identifying the problem.

The second component of the study was directed at identifying the emotional, intellectual and physical characteristics that provide information predictive of exceptional pupil's successful placement in least restrictive educational environments. These behavioral and physical characteristics applied to the learning, communicatively and physically handicapped. There are many variables that may assist in determining successful placement of exceptional pupils in the least restrictive educational environment. The following were stated by Gearheart (1976, p. 28) as providing useful information relative to educational placement:

1. Chronological age
2. Type and degree of impairment or disability
3. Age at onset
4. Level of achievement
5. Measured intellectual ability
6. Social maturity
7. Presence of multiple handicapped conditions (thus the need for related, non-educational services)
8. Ambulation or mobility (particularly important when considering crippled and other health impaired and visually impaired)
9. Success of past and present placement
10. Speech and language
11. Wishes of student and student's parents
12. Availability of services

Again, these variables are not inclusive, but they do provide information that should be considered prior to determining special education placement.

The research study's major focus was to match the emotional, intellectual and physical characteristics of exceptional pupils with the appropriate placements and to define the least restrictive educational environments that would ensure successful normalization experiences for exceptional pupils. Computer analysis was incorporated into this study to assist in matching various least restrictive educational environments with the behavioral and physical characteristics of exceptional pupils.

HISTORICAL OVERVIEW

Legal Basis

The least restrictive educational environment as a term had its origin in the legal realm, not the educational. Throughout various litigation proceedings the courts have referred to the doctrine of the least restrictive alternative. One of the initial cases to apply this concept was McCullough vs. Maryland in 1918. In this case, the court stated that regulations affecting the citizens of a state should be both "appropriate" and "plainly adapted" to the end sought. Even though this case dealt with the right of the federal government to establish a national bank and not an educational concern, the concept of least restrictive alternative was apparent when the interests of the liberties of the public sector were in conflict with government.

Probably the best known court case relevant to educational litigation is Brown vs. Board of Education. The Supreme Court in a landmark decision, ruled that "separate, but equal, was inherently

unequal." Although, the case pertained to the racial desegregation of the Topeka Kansas School District, many of the provisions of this case provided the impetus that led to mainstreaming exceptional pupils in the early seventies.

The concept of the least restrictive alternative as an educational case was first tested in the courts in Shelton vs. Tucker in 1960. The Supreme Court ruled that the state of Arkansas could not require teachers to report their membership in organizations. The court stated that "less drastic means for achieving the same basic purpose" must be considered. Such requirements were perceived as an imposition on the group by the court. The concept of providing alternatives that were less restricting to teachers of Arkansas has also proven to be true when referring to the educational placement of exceptional pupils.

In 1969, in Wolf vs. Legislature of the State of Utah the court stated that "A sense of inferiority and not belonging affects the motivation of a child to learn. Segregation, even though perhaps well intended...retard the educational, emotional and mental development of the children." The court again saw the segregation of handicapped children as an imposition on the children of concern and their parents; a less restrictive setting was mandated.

Following Wolf were the landmark decisions of Pennsylvania Association for Retarded Children (PARC) vs. Commonwealth of Pennsylvania (1971) and Mills vs. Board of Education of District of Columbia (1972) which established the concept of least restrictive educational environment in very specific terms.

The court ruled in the PARC decision that "placement in a regular

public school is preferable to placement in a special public school class, and placement in a special public school class is preferable to placement in any other type of program of education and training." Even though the term least restrictive alternative was not stated by the court, the intent was clear and concise. Shortly after the PARC and Mills decisions came, legislation was accelerated which guaranteed the rights of exceptional pupils to an appropriate and equal educational opportunity.

The placement of exceptional pupils in the least restrictive educational environments has been mandated in the State of California by both AB 1250 (Master Plan for Special Education) and P.L. 94-142 (Education for All the Handicapped Act). In essence, this mandate provides that, when an educational institution recommends special education placement, it must do so using the least restrictive alternative available. The courts have ruled (Mills vs. Board of Education, PARC vs. Commonwealth of Pennsylvania, Wyatt vs. Stickney, Lake vs. Cameron and Welsh vs. Likens) in principle that special education placement practices are in violation of the fundamental liberties of children if they are removed from their peer group without benefit of procedural safeguardes that are appropriate and timely.

The mandate of least restrictive educational environment presents for exceptional pupils the right to be educated in the regular classroom when appropriate, unless clear evidence is available that partial or complete placement in a special education class will provide a more beneficial learning environment.

Related Research

There is a dearth of research relating to the matching of behavioral and physical characteristics of exceptional pupils with the appropriate

least restrictive educational environment. In a study which investigated various new conceptualizations in special education, Burrello, Tracy and Schultz (1973) delineated assumptions that may guide present and future education practices regarding placement of exceptional pupils. The following statements were listed by the authors (p. 30):

1. Focus of intervention is on the trainer as well as on the child, parent and significant others.

2. Educational opportunity is defined as the continual testing of the parameters of the institution to develop a set of least restrictive alternatives.

3. Individual differences are the basis for determining alternatives.

4. Special programs based upon contractual arrangements within specified time periods are recommended for all placement alternatives.

5. Parents and children are advised by professionals as to the options available. Parent and child decide which program they believe is in their best interest. Professional staff here are conceived of as consultants to parents and not as decision makers.

In a study which identified nonintellectual factors associated with special class placement Rubin, Krus and Balow (1973) stated that environmental circumstances may be at least of equal significance in determining educational placement. Some examples of environmental variables that may contribute to decisions regarding special education placement are as follows (p. 531):

(a) the degree of program flexibility provided within the educational mainstream in different school systems (e.g., resource centers and ungraded primaries) and

(b) the differing attitudes and value systems of those teachers, psychologists, and administrators involved in the identification and placement process.

Haring and Krug (1975) conducted a study to gain information which would help provide the facts needed for mainstreaming students who have

come from families with low socioeconomic status and have been moved from special classes into regular classes. The authors stated that "if high risk children are going to be successfully mainstreamed, they have to be academically and socially prepared before re-entry" (p. 417). It is essential therefore to identify the entry level skills that are expected of the regular education program and provide the appropriate support to the exceptional pupils in the mainstreamed setting.

In a study of 3 to 6 year old hearing impaired pupils mainstreamed into regular educational programs, Northcott (1971) concluded that a variety of information should be considered prior to regular educational placement. "The decisive criteria may well include audiogram configuration vs. the performing child; observed social, academic and speech skills; optimum utilization of residual hearing; and presence or absence of a supportive home environment" (p. 202).

A computer storage and retrieval educational management system (1975) that matches the cognitive, affective and physical characteristics of pupils with individual instructional objectives was developed by the Oakland Schools in Michigan to assist classroom teachers to better individualize educational plans through the use of modular educational achievement descriptors (MEAD). The principle of computer storage and retrieval of educational information should provide a systematic approach to matching exceptional pupils to the appropriate educational placement alternative.

Summary

The doctrine of the least restrictive alternative has its foundation in the law, not in educational practice. This concept has been applied

to litigation that has focused on governmental affairs, penal institutions, mental health care, etc. The use of this doctrine in regard to educational delivery systems was applied with good intent. Allowing exceptional individuals to have the maximum possible interaction with the nonhandicapped population is essential if both groups are to benefit from this experience. The difficulty relative to this doctrine is that one may fail to take in to account the fact that some children may receive limited, if any, benefits from the normalizing encounters.

Hallahan and Kauffman (1978) stated that "It is important to keep the ultimate goals for the child in mind and to avoid letting 'least restrictive' become a hollow slogan that results in shortchanging children in terms of the education they should be receiving" (p. 7).

The definitions provided in both A.B. 1250 and P.L. 94-142 are laudable. The two major concerns of these definitions identified in this study are (1) The implications that "least restrictive environment" is synonymous with "mainstreaming" and (2) The hierarchical continuum structure when referring to the delivery of special education programs. Both the delivery system continua and the concept of mainstreaming provide excellent models with reference to the more mild degrees of exceptional pupils. Problems resulting from applying these concepts are pronounced for pupils with severe degrees of handicap. For many exceptional children, placement in a regular classroom may be the most restrictive educational setting. "It is conceivable that a child could be more restricted in the long run if he is placed in a regular class where he is rejected by others and fails to learn necessary skills than if he were placed in a special class or day school where he learns happily and well." (Hallahan and Kauffman, p. 7)

The key term in considering the placement of exceptional pupils is "appropriate." The temporal integration concept, which infers that the regular classroom is the best alternative for all exceptional pupils, is questionable and naive at best. Perhaps a more educationally realistic approach would employ a conceptual model that would consider program placement as points in a universe of educational environment alternatives. This model would be based on the cognitive, affective and physical characteristics of various program alternatives. Meyer (1978) stated that "In addition to temporal integration, variables such as the directness, intensity, duration of the services provided and/or the type of instruction offered have been considered" (p. 35).

Indeed, this study has considered these variables as viable criteria when attempting to identify the most appropriate educational placement for exceptional pupils.

METHODS

Questionnaire

The questionnaire used to gather data for this study was devised by the principal investigator and was designed to gather information on children's successful functioning in least restrictive environments. It consisted of three parts. The first gathered information on individual pupil characteristics: age, gender and grade level. The second sought information on the least restrictive educational environment in which the child functioned successfully. The third obtained descriptions of the individual pupil's function in four areas: instructional performance, communication performance, personal adjustment and physical performance. Individual items and subsections of the questionnaire were included because of information obtained during the review of literature on least restrictive environments.

The initial version was reviewed by faculty members of California State University, Sacramento. Revisions were made, and the questionnaire was submitted to special educators for further comment. It was reviewed by members of the staff of the California School for the Blind; the California School for the Deaf; the Diagnostic School for the Nuerologically Handicapped, North; the Napa State Hospital; the Napa County Development Center for Handicapped Minors; the Sacramento City Unified School District, and the San Juan Unified School District. Other special educators enrolled in courses taught by the principal investigator reviewed the questionnaire too. Further revisions were made before the instrument was composed and printed.

The questionnaire was typed and reduced by photocopy process. It was then composed and reduced so that it could be fit onto two sides of an 8½ X 11 inch sheet of paper. Copies were then photoduplicated and packaged along with cover letters. The material was then distributed to the districts and agencies in two samples. The questionnaire and cover letter appear on pages 13 and 14.

Sample

Two separate samples were employed in this study. The first was designated the research sample and consisted of the schools and agencies listed in Table 1. The second sample was designated the verification sample and consisted of a sample of school districts which had Master Plan Programs during the 1977-78 academic year. A complete list of those districts is included in Table 2.

Schools and agencies in the research sample were contacted by telephone and then visited by the principal investigator and the study administrator. The chief administrator of each school or agency was informed of the purpose of the study and was given copies of the questionnaire to examine and to have reviewed by her/his staff. An indication of approximately when the questionnaires would be delivered to each agency was then given. Follow-up telephone contact with each agency was made to verify numbers of staff involved in the program and to remind the administrator of time constraints. Then letters of thanks were sent to each facility along with a reminder that the questionnaires would arrive at the facility on the agreed upon dates.

For the verification group, letters were sent to school districts with Master Plan Programs. The directors of special education were

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LEAST RESTRICTIVE ENVIRONMENT STUDY

Directions: Please identify the pupil by age, gender and grade level.

1. Age _____

2. Gender: Female ____
Male ____

3. Grade Level: Preschool ____
Kindergarten-Primary ____
Intermediate ____
Junior High School ____
Senior High School ____

+ + + + + + + + +

LEAST RESTRICTIVE EDUCATIONAL ENVIRONMENT DESCRIPTORS

Directions: Please select the most appropriate statement(s) that best describe(s) the educational program in which the pupil is enrolled. When more than one statement applies, please indicate all appropriate statements.

____ 1. Type of program and/or service:
a. Regular education classroom
b. Special education classroom
c. Special education resource specialist program
d. Special education supportive service (designated instructional services) only
e. Other_____

____ 2. Location of program:
a. Regular School
b. Special School
c. Portable Bldg.
d. Other_____

____ 3. Supportive Services received from:
a. Speech & language therapist
b. Social worker
c. Psychologist
d. Psychiatrist
e. Physical Therapist
f. Occupational therapist
g. Mobility and orientation
h. Audiologist
i. Other_____

____ 4. The number of teacher(s) assigned for the instruction of the class:
a. 1
b. 2
c. 3
d. 4
e. 5
f. 6 or more

____ 5. The number of teacher-aide(s) assigned to class:
a. 1
b. 2
c. 3
d. 4
e. 5
f. 6 or more

____ 6 The number of non-professional or para-professionals (i.e. volunteer adults, etc.) assisting with the class per day:
a. 1
b. 2
c. 3
d. 4
e. 5
f. 6 or more

____ 7. Number of pupils enrolled in the program:
a. 1-3
b. 4-6
c. 7-10
d. 11-14
e. 15-18
f. 18-21
g. Other ____

____ 8. How many hours is the pupil in school per day:
a. 1
b. 2
c. 3
d. 4
e. 5
f. 6 or more

____ 9. How many hours is the pupil enrolled in the special education program per day: (select the nearest)
a. Less than 1 hour
b. 1 hour
c. 2 hours
d. 3 hours
e. 4 hours
f. 5 hours
g. 6 hours or more

____ 10. How many days is the pupil in school per year:
a. 1-50
b. 51-100
c. 101-150
d. 151-200
e. 201-250
f. 251-300 or more

____ 11. The amount of time per day that the pupil interacts with pupils in other class(es) who exhibit lesser disabilities:
a. none
b. less than 1 hour
c. 2 hours
d. 3 hours
e. 4 hours
f. 5 hours
g. 6 hours or more

____ 12. The amount of time per day that the pupil interacts with non-special education pupils:
a. none
b. less than 1 hour
c. 2 hours
d. 3 hours
e. 4 hours
f. 5 hours
g. 6 hours or more

+ + + + + + + +

PUPIL CHARACTERISTIC DESCRIPTION

Directions: Please select the one most appropriate statement which describes the characteristics exhibited by the pupil.

SECTION I: INSTRUCTIONAL PERFORMANCE

____ 1. Pupil's instructional grade level in Reading:
a. Pre-Readiness
b. Readiness
c. 1
d. 2
e. 3
f. 4
g. 5
h. 6
i. 7
j. 8
k. 9
l. 10
m. 11
n. 12
o. Not Applicable

____ 2. Pupil's instructional grade level in Arithmetic?
a. Pre-Readiness
b. Readiness
c. 1
d. 2
e. 3
f. 4
g. 5
h. 6
i. 7
j. 8
k. 9
l. 10
m. 11
n. 12
o. Not Applicable

____ 3. Pupil's instructional level in Handwriting?
a. Pre-Readiness
b. Readiness
c. Manuscript
d. Cursive
e. Not Applicable

____ 4. Pupil's instructional mode in Reading (Visual Activity)?
a. Ordinary print without correction
b. Large print without correction
c. Large print with correction
d. Braille
e. Not Applicable

____ 5. Pupil's instructional mode in Listening (Auditory Activity)?
a. Normal conversation without hearing aid
b. Conversation speech at 3-5 ft. with hearing aid
c. Loud voice with hearing aid
d. Loud environmental sounds with hearing aid
e. Not Applicable

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SECTION II: COMMUNICATION PERFORMANCE

____ 6. Pupil's verbal expressive language level?
a. Can be understood by anyone
b. Can be understood by some unfamiliar listeners
c. Can be understood only by familiar listeners
d. Cannot be understood by others

____ 7. Pupil imitates speech sounds.
a. Sentences
b. Words
c. Sounds
d. Cannot

____ 8. Pupil speaks in ____ sentences.
a. Complex
b. Short Complete
c. Incomplete
d. Cannot

____ 9. Pupil's primary expressive communication mode:
a. Normal verbal expression
b. Expression approaches for hearing impaired (manual, oral, total)
c. Gestures devised by pupil
d. Doesn't communicate

SECTION III: PERSONAL ADJUSTMENT

(Rate this section as if the pupil were receiving minimal adult supervision)

____ 10. Pupil's personality orientation:
a. Adequate
b. Aggressive
c. Passive/Aggressive
d. Withdrawn

____ 11. Socializing with other pupils in the special education class:
a. Excellent
b. Good
c. Fair
d. Poor

____ 12. Socializing with other pupils outside the special education class:
a. Excellent
b. Good
c. Fair
d. Poor

____ 13. Socializing with adults in the school:
a. Excellent
b. Good
c. Fair
d. Poor

____ 14. Response to orders expressed by adults in the school:
a. Excellent
b. Good
c. Fair
d. Poor

____ 15. Completion of assignments required in the special education class:
a. Excellent
b. Good
c. Fair
d. Poor
e. Not Applicable

____ 16. Completion of assignments required outside the special education class:
a. Excellent
b. Good
c. Fair
d. Poor
e. Not Applicable

____ 17. Behavior during school transportation:
a. Excellent
b. Good
c. Fair
d. Poor
e. Not Applicable

____ 18. Behavior during lunch:
a. Excellent
b. Good
c. Fair
d. Poor

____ 19. Behavior during recess:
a. Excellent
b. Good
c. Fair
d. Poor
e. Not Applicable

____ 20. Respect for property of others and adults in the school:
a. Excellent
b. Good
c. Fair
d. Poor

____ 21. Self-care: Dressing independently
a. Completely
b. Completely except for tying shoes
c. Most clothes
d. Cannot

____ 22. Self-care: Keeping body & clothing clean:
a. Always
b. Sometimes
c. Seldom
d. Never

____ 23. Self-care: Toileting
a. Always
b. Sometimes
c. Seldom
d. Never

____ 24. Self-care: Cleans up after activities:
a. Always
b. Sometimes
c. Seldom
d. Never

____ 25. Self-care: Puts things away without being reminded:
a. Always
b. Sometimes
c. Seldom
d. Never

____ 26. Self-care: Feeding independently:
a. Never needs help, no difficulty
b. Needs help sometimes
c. Can, but difficult
d. Cannot

SECTION IV: PHYSICAL PERFORMANCE

____ 27. Pupil's locomotion in the school setting:
a. No assistance or prothesis necessary
b. Walker or crutches
c. Wheelchair
d. Immobile and must be carried

____ 28. Pupil's mobility level in the school setting:
a. Familiar and unfamiliar places with own vision
b. Familiar and unfamiliar places with cane
c. Familiar places with cane
d. Needs sighted guide

Comments:

Applied Research Consultants

2770 HYANNIS WAY • SACRAMENTO, CA • (916) 363-6623

February 27, 1978

Dear Respondent:

The primary focus of this survey is to identify and define a variety of educational placement alternatives with reference to least restrictive environment and to match these educational settings with the cognitive, social-emotional, and physical development of exceptional pupils. The State of California defines least restrictive alternatives as "placement of an individual with exceptional needs in any program(s) which promote maximum interaction with the regular school program in a manner beneficial to that pupil and pupils in the regular classroom."

The need to explore criteria used to determine placement of individuals with exceptional needs is very important if successful normalization experiences are to be established. The results of this study can be used by educational planning and placement committees (Admission and Dismissal Committees, School Appraisal Teams, and Educational Assessment Services). A system for profiling pupil placement information and relating those date to success in least restrictive environments will be the final product.

Please select only those individuals who in your judgement are responding successfully to their educational placement. Fill out a survey form on each individual. Then, when you have completed the surveys, return used and unused surveys to your contact office. For personnel in the Sacramento City Unified School District, return the material to Dr. Stiavelli's office; in San Juan Unified School District return the material to Dr. Peterson's office. For all other participants return the material to the office of the Superintendent of your institution.

We appreciate your time and professional judgement in completing this generic survey of characteristics of least restrictive placements of individuals with exceptional needs. We hope this will assist in improving the educational placement process in California.

Sincerely,

David E. Raske

David E. Raske, Ed.D.
Assistant Professor
California State University,
Sacramento

William R. Merz

William R. Merz, Ph.D.
Associate Professor
California State University,
Sacramento

DER:WRM: ncm

Table 1

LIST OF PARTICIPANTS IN THE RESEARCH GROUP

California School for the Blind

California School for the Deaf

Diagnostic School for the Neurologically Handicapped, North

Sacramento Children's Home

Sierra Schools Language Arts Development Center

Napa County Development Center for Handicapped Minors

Napa State Hospital

Sacramento City Unified School District

San Juan Unified School District

Table 2

LIST OF PARTICIPANTS IN VERIFICATION GROUP

Acalanes Union High School District

Antioch Unified School District

Buenna Vista Elementary School District

Burton Elementary School District

Byron Union Elementary School District

Carpenteria Unified School District

Ceres Unified School District

Cutler-Orsi Joint Unified School District

Denair Unified School District

Dinuba Joint Union High School District

Ducor Union Elementary School District

Empire Union Elementary School District

Exeter Union Elementary School District

Farmersville Elementary School District

Guadalupe Union Elementary School District

Hickman Elementary School District

John Swett Unified School District

Keyes Union Elementary School District

Klammath-Trinity Joint Unified School District

Table 2 (Con't)

LIST OF PARTICIPANTS IN VERIFICATION GROUP

Knightsen Elementary School District

Lindsay Unified School District

Los Olivos Elementary School District

Moraga Elementary School District

Monson-Sultana Joint Union School District

Montecito Union Elementary School District

Newman-Crows Landing Unified School District

Oakdale Union Elementary School District

Patterson Joint Unified School District

Pixley Union Elementary School District

Porterville Union High School District

Richgrove Elementary School District

Riverbank Elementary School District

Santa Barbara High School District

Sausalito Elementary School District

Stanislaus Union Elementary School District

Strathmore Union Elementary School District

Solvang Elementary School District

Sunnyside Union Elementary School District

Sylvan Union Elementary School District

Tulare City Elementary School District

Turlock Joint Union High School District

Waterford Elementary School District

Woodlake Union Elementary School District

asked to participate in the verification phase of this study. Return postcards were enclosed with each letter. Ninety-three districts were contacted. However, returns were so poor that individual phone contacts were made with fifty of the districts. From these fifty and from the returns of the postcards, forty-three districts were included in the verification sample. Questionnaires and letters of direction were sent to the cooperating districts. These letters and questionnaires may be found on pages 19 through 24.

STATISTICAL APPROACH

The initial design of this study was a validation, cross-validation employing survey techniques. Two samples of data were taken; the first, the research group, and the second, the verification group. Data were first summarized for both groups. Frequency distributions of the findings are reported in Tables 3 through 33. Next, pupil characteristic descriptions were submitted to principal components analysis. With this technique the responses across pupils were reduced to an item intercorrelation matrix. These correlations were then reduced with principal components analysis to obtain factors which describe how items aggregate together in common groupings. Next, items which grouped together were made into subscales; that is, linear combinations of these items were created. There were nine such groups or subscales. Then, pupils educational environment descriptors were clustered. And finally, pupils were clustered on the scores for each subscale created from the characteristic descriptions.

APPLIED RESEARCH CONSULTANTS P.O. Box 145, Rancho Cordova, CA 95670

LEAST RESTRICTIVE ENVIRONMENT STUDY

Directions: Please identify the pupil by age, gender and grade level.

1. Age _____

2. Gender: Female ____ Male ____

3. Grade Level: Preschool ____ Kindergarten-Primary ____ Intermediate ____ Junior High School ____ Senior High School ____

+ + + + + + + + +

PUPIL CHARACTERISTIC DESCRIPTION

Directions: Please select the one most appropriate statement which describes the characteristics exhibited by the pupil.

SECTION I: INSTRUCTIONAL PERFORMANCE

____ 1. Pupil's instructional grade level in Reading:
a. Pre-Readiness b. Readiness c. 1 d. 2 e. 3 f. 4 g. 5 h. 6 i. 7 j. 8 k. 9 l. 10 m. 11 n. 12 o. Not Applicable

____ 2. Pupil's instructional grade level in Arithmetic?
a. Pre-Readiness b. Readiness c. 1 d. 2 e. 3 f. 4 g. 5 h. 6 i. 7 j. 8 k. 9 l. 10 m. 11 n. 12 o. Not Applicable

____ 3. Pupil's instructional level in Handwriting?
a. Pre-Readiness b. Readiness c. Manuscript d. Cursive e. Not Applicable

____ 4. Pupil's instructional mode in Reading (Visual Activity)?
a. Ordinary print without correction
b. Large print without correction
c. Large print with correction
d. Braille
e. Not Applicable

____ 5. Pupil's instructional mode in Listening (Auditory Activity)?
a. Normal conversation without hearing aid
b. Conversation speech at 3-5 ft. with hearing aid
c. Loud voice with hearing aid
d. Loud environmental sounds with hearing aid
e. Not Applicable

SECTION II: COMMUNICATION PERFORMANCE

____ 6. Pupil's verbal expressive language level?
a. Can be understood by anyone
b. Can be understood by some unfamiliar listeners
c. Can be understood only by familiar listeners
d. Cannot be understood by others

____ 7. Pupil imitates speech sounds.
a. Sentences b. Words c. Sounds d. Cannot

____ 8. Pupil speaks in ____ sentences.
a. Complex b. Short Complete c. Incomplete d. Cannot

____ 9. Pupil's primary expressive communication mode:
a. Normal verbal expression
b. Expression approaches for hearing impaired (manual, oral, total)
c. Gestures devised by pupil
d. Doesn't communicate

SECTION III: PERSONAL ADJUSTMENT

(Rate this section as if the pupil were receiving minimal adult supervision)

____ 10. Pupil's personality orientation:
a. Adequate b. Aggressive c. Passive/Aggressive d. Withdrawn

____ 11. Socializing with other pupils in the special education class:
a. Excellent b. Good c. Fair d. Poor

____ 12. Socializing with other pupils outside the special education class:
a. Excellent b. Good c. Fair d. Poor

____ 13. Socializing with adults in the school:
a. Excellent b. Good c. Fair d. Poor

____ 14. Response to orders expressed by adults in the school:
a. Excellent b. Good c. Fair d. Poor

____ 15. Completion of assignments required in the special education class:
a. Excellent b. Good c. Fair d. Poor e. Not Applicable

____ 16. Completion of assignments required outside the special education class:
a. Excellent b. Good c. Fair d. Poor e. Not Applicable

____ 17. Behavior during school transportation:
a. Excellent b. Good c. Fair d. Poor e. Not Applicable

____ 18. Behavior during lunch:
a. Excellent b. Good c. Fair d. Poor

____ 19. Behavior during recess:
a. Excellent b. Good c. Fair d. Poor e. Not Applicable

____ 20. Respect for property of others and adults in the school:
a. Excellent b. Good c. Fair d. Poor

____ 21. Self-care: Dressing independently
a. Completely
b. Completely except for tying shoes
c. Most clothes
d. Cannot

____ 22. Self-care: Keeping body & clothing clean:
a. Always b. Sometimes c. Seldom d. Never

____ 23. Self-care: Toileting
a. Always b. Sometimes c. Seldom d. Never

____ 24. Self-care: Cleans up after activities:
a. Always b. Sometimes c. Seldom d. Never

____ 25. Self-care: Puts things away without being reminded:
a. Always b. Sometimes c. Seldom d. Never

____ 26. Self-care: Feeding independently:=
a. Never needs help, no difficulty
b. Needs help sometimes
c. Can, but difficult
d. Cannot

SECTION IV: PHYSICAL PERFORMANCE

____ 27. Pupil's locomotion in the school setting:
a. No assistance or prothesis necessary
b. Walker or crutches
c. Wheelchair
d. Immobile and must be carried

____ 28. Pupil's mobility level in the school setting:
a. Familiar and unfamiliar places with own vision
b. Familiar and unfamiliar places with cane
c. Familiar places with cane
d. Needs sighted guide

+ + + + + + + +

LEAST RESTRICTIVE EDUCATIONAL ENVIRONMENT DESCRIPTORS

Directions: Please select the most appropriate statement(s) that best describe(s) the educational program in which the pupil is enrolled. When more than one statement applies, please indicate all appropriate statements.

____ 1. Type of program and/or service:
a. Regular education classroom
b. Special education classroom
c. Special education resource specialist program
d. Special education supportive service (designated instructional services) only
e. Other_____

____ 2. Location of program and/or service:
a. Public local school district
b. County school district
c. Private school
d. State school
e. State residential hospital

____ 3. Supportive Services received from:
a. Speech & language therapist
b. Social worker
c. Psychologist
d. Psychiatrist
e. Physical Therapist
f. Occupational therapist
g. Mobility and orientation
h. Audiologist
i. Other_____

____ 4. The number of teacher(s) assigned for the instruction of the class:
a. 1
b. 2
c. 3
d. 4
e. 5
f. 6 or more

____ 5. The number of teacher-aide(s) assigned to class:
a. 1
b. 2
c. 3
d. 4
e. 5
f. 6 or more

____ 6. The number of non-professional or non-paraprofessionals (i.e. volunteer adults, etc.) assisting with the class per day:
a. 1
b. 2
c. 3
d. 4
e. 5
f. 6 or more

____ 7. Number of pupils enrolled in the program:
a. 1-3
b. 4-6
c. 7-10
d. 11-14
e. 15-18
f. 18-21
g. Other _____

____ 8. How many hours is the pupil in school per day:
a. 1
b. 2
c. 3
d. 4
e. 5
f. 6 or more

____ 9. How many hours is the pupil enrolled in the special education program per day: (select the nearest)
a. Less than 1 hour
b. 1 hour
c. 2 hours
d. 3 hours
e. 4 hours
f. 5 hours
g. 6 hours or more

____ 10. How many days is the pupil in school per year:
a. 1-50
b. 51-100
c. 101-150
d. 151-200
e. 201-250
f. 251-300 or more

____ 11. The amount of time per day that the pupil interacts with pupils in other class(es) who exhibit lesser disabilities:
a. none
b. less than 1 hour
c. 2 hours
d. 3 hours
e. 4 hours
f. 5 hours
g. 6 hours or more

____ 12. The amount of time per day that the pupil interacts with non-special education pupils:
a. none
b. less than 1 hour
c. 2 hours
d. 3 hours
e. 4 hours
f. 5 hours
g. 6 hours or more

13. Type of classification

____ Learning Handicapped
a. Learning disabilities
b. Behavior disorder
c. Educationally retarded

____ Severely Handicapped
a. Trainable mentally retarded
b. Developmentally handicapped
c. Seriously Emotionally Disturbed
d. Autistic

____ Communicatively Handicapped
a. Deaf
b. Severely hard of hearing
c. Moderately hard of hearing
d. Severe oral language disorder
e. Speech handicap

____ Physically Handicapped
a. Blind
b. Partially seeing
c. Orthopedic handicap
d. Other health impairment

APPLIED RESEARCH CONSULTANTS, P.O. BOX 145, RANCHO CORDOVA, CA 95670

Applied Research Consultants, Inc.

2770 HYANNIS WAY · SACRAMENTO, CA · (916) 363-6623

April 10, 1978

Dear Director:

The California State Department of Education has awarded a grant for a special education research study to Applied Research Consultants for the 1977-78 school year. The purpose of this study is to identify and define a variety of educational placements with reference to least restrictive alternatives and to match these to educational needs of exceptional pupils. The state of California defines least restrictive alternatives as "placement of an individual with exceptional needs in any program(s) which promote maximum interaction with the regular classroom." The need to explore criteria used to determine placement of individuals with exceptional needs is very important if successful normalization experiences are to be established.

Data has been collected on the characteristics of over eight hundred special education pupils placed in various least restrictive alternatives throughout the state of California. Profiles have been constructed from this information to identify the most appropriate least restrictive alternative for pupils in special education programs.

Your local school district has been chosen as a possible site for field examination of this computer profile analysis. All that will be asked of your school district is to complete a one page questionnaire of approximately thirty items for each pupil included in the study. The questionnaire would be completed by the School Appraisal Team or the Educational Assessment Service for pupils being considered for special education placement. We do not require a large number of pupils nor a great amount of information on any one pupil.

After receiving the surveys from your school district, Applied Research Consultants will provide a rank ordered listing with the associated probabilities of a pupil's estimated success in each particular type of least restrictive environment. Comparison can be made between the actual placement of the exceptional pupil and our prediction for placement.

If you are interested in having your district participate in this important study, please complete and return the card enclosed. All interested participants will then be contacted by us for immediate

implimentation of the program. There will be no cost to you, and no more than three weeks of direct participation will be involved. Questionnaires on your pupils involve the disclosure of no personal or private information and can be completed very quickly.

Thank you very much for your time and effort. The information obtained through your institution's participation will help develop a system for profiling pupil placement information so that successful placement in a least restrictive environment can be predicted.

Sincerely,

David E. Raske

David E. Raske, EdD.
Assistant Professor,
Department of Teacher Education
California State University, Sacramento

William R. Merz

William R. Merz, PhD.
Associate Professor,
Department of Behavioral Sciences
California State University, Sacramento

DER WRM:am

Applied Research Consultants

2770 Hyannis Way • Sacramento, CA 95827 • (916) 363-6623
Mailing Address: P.O. Box 145 • Rancho Cordova, CA 95670

May 12, 1978

Dear Special Education Director:

While you have asked for more information about our special education study, we are sending you several sets of survey instruments along with an abstract of our project proposal. We hope that after reading the abstract you will participate in the study and distribute them to your staff. The questionnaires will validate our system for identifying the least restrictive environment/pupil match. This information will be used in cross-validating a computer retrieval system currently being developed.

Distribute to each staff member five to ten surveys and an information letter. Have each staff member fill out surveys for five to ten pupils placed in special education programs (e.g., classroom, resource, and support services). Please select a variety of programs; that is, L.H., S.H.,C.H., P.H., that serve individuals with exceptional needs. When the surveys have been completed please return all used and unused materials in the envelope enclosed by May 31, 1978.

We appreciate your time and professional judgement in participating in this California Department of Education funded project. We hope this information will assist in improving the educational placement process for individuals with exceptional needs.

Sincerely,

David E. Raske

David E. Raske, Ed.D.
Assistant Professor, Teacher Education
California State University,
Sacramento

William R. Merz

William R. Merz, Ph.D.
Associate Professor, Behavioral Science
California State University,
Sacramento

DER:WRM:mcm

California State Department of Education
Sacramento, California

SPECIAL EDUCATION RESEARCH PROGRAM
1977 - 1978

Project No.	Applicant	Address/Phone
77-58-C	William R. Merz, Ph.D. Research Consulting Service, Inc.	P.O. Box 145 Rancho Cordova, CA 95670 (916) 363-6623
	David E. Raske, Ed.D. Research Consulting Service, Inc.	

ABSTRACT

Purpose & Rationale The primary focus of this study is to identify and define a variety of educational placement alternatives with reference to least restrictive alternatives and to match these educational settings with the cognitive, affective, and physical development of exceptional pupils. The State of California defines least restrictive alternative as "placement of an individual with exceptional needs in any program(s) which promote maximum interaction with the regular school program in a manner beneficial to that pupil and pupils in the regular classroom." The need to explore criteria used to determine placement of individuals with exceptional needs is very important if successful normalization experiences are to be established.

Research Design A profile of pupil characteristics will be derived empirically. This profile will be validated on 200 special education pupils placed in least restrictive environments. The efficacy of pupils' functions in those environments will be evaluated by the statistical procedure discriminant analysis. The final product will be a system for identifying the most appropriate least restrictive environment for pupils in special education programs.

Population The population studied will be special education pupils placed in least restrictive environments. A sample of approximately 200 male and female exceptional pupils enrolled in a variety of special education programs will be used. Programs will be identified across educational categories at six educational levels. Materials developed will be educational placement profiles, administration manual, and a computer profile analysis system.

How The Study Will Be Conducted After target programs have been identified, individuals with exceptional needs who have been successfully placed in a least restrictive environment will be identified through the assistance of teachers, supportive staff, school administrators, parents, and regular education pupils. Interviews, rating schedules, and traditional measures will be utilized.

Use Of Results The results of this study can be used by the California State Department of Education, university training programs, and local school districts' educational planning committees. A system for profiling pupil placement information and relating those data to success in least restrictive environments will be the final product.

Applied Research Consultants

2770 Hyannis Way • Sacramento, CA 95827 • (916) 363-2701 363-6623
Mailing Address: P.O. Box 145 • Rancho Cordova, CA 95670

May 12, 1978

Dear Respondent:

The primary focus of this survey is to identify and define a variety of educational placement alternatives with reference to least restrictive environments and to match these educational settings with the cognitive, social-emotional, and physical development of exceptional pupils. The State of California defines least restrictive alternatives as "placement of an individual with exceptional needs in a program(s) which promote maximum interaction with the regular school program in a manner beneficial to that pupil and to pupils in the regular classrooms."

The need to explore criteria used to determine placement of individuals with exceptional needs is very important if successful normalization experiences are to be established. The results of this study can be used by educational placement and planning committees (Admission and Dismissal Committees, School Appraisal Teams, and Educational Assessment Services). A system for profiling pupil placement information and relating those data to success in least restrictive environments will be the final product.

In order for us to complete this study we need your assistance. Please select five to ten pupils placed in your program. Fill out a survey form on each individual. Then, when you have completed the surveys, return used and unused surveys to your contact office in the envelope provided. Please complete the surveys by Wednesday, May 24, 1978.

We appreciate your time and professional judgement in completing this generic survey of characteristics of least restrictive placements of individuals with exceptional needs. We hope this will assist in improving the educational placement process in California.

Sincerely,

David E. Raske

David E. Raske, Ed.D.
Assistant Professor, Teacher Education
California State University,
Sacramento

William R. Merz

William R. Merz, Ph.D.
Associate Professor, Behavioral Science
California State University,
Sacramento

WRM:DER: mcm

A technique called cluster analysis was employed. It is related to factor analysis in that it attempts to identify groups of individuals with similar characteristics or item responses. In this way, individuals with similar profiles may be identified. The two clusterings of pupils by characteristic description and pupils by educational environment descriptors were then related by a technique called linear discriminant function. This technique predicted group membership from a linear combination of variables. In this case, the characteristic descriptions were used to predict group membership from the educational environment descriptors.

With the principal components analysis, nine factors were extracted from the pupil characteristic description. Eight clusters of individuals were identified from the educational environment descriptors. Another eight groups were created with the linear combinations of items in the pupil characteristic descriptions, the product of the principal components analysis. Finally, membership in each of the eight groups of educational environment descriptors was predicted from membership in the eight groups created by the analysis of the pupil characteristic description, using the technique called discriminant function.

From this point the verification group was analyzed employing the coefficients derived in the analysis of the data on the research group. In other words, the method employed with the first group was repeated with the verification group; in this case, the prediction equations of the research group were employed to make predictions for the verification group. If the prediction equations worked, similar profiles of pupil characteristics and educational environment descriptors would be noted for both groups.

ANALYSIS

Descriptive Information

First, it is important to examine the similarity of the three groups of pupils employed in this study. The first group is the research group for whom questionnaires were returned; 523 usable questionnaires were received. However, errors in completing several items reduced that number to 476. Thus, the second group, the research group on which the data analysis was performed, is composed of 476 usable records. The third group is the validation group on which the procedure and equations developed with the research group were applied. Tables 3 through 5 report participating schools and proportions of the total sample represented by each agency. Proportions of returns reported in Tables 3 and 4 demonstrate that the proportions of usable returns are roughly equivalent to proportions of surveys returned. The verification group included no pupils from special state schools or from private schools so that there is some disparity between percentages from research group to verification group.

Age, Gender and Grade Level

Table 6 reports the distribution of pupils by age in each of the three groups. In examining that table it is clear that the ages of the three groups vary somewhat. There is a 0.14 year difference in the mean ages of the total research group and the usable research group. There is only a 0.07 year difference in standard deviation. The medians are almost identical, 0.05 years difference. The verification group, however, has a mean 0.77 years less and a median of 1.02 less than the research group on which the analysis was performed. This indicates that the pupils are by and large younger than the research group. In fact, when one examines the distribution of ages, it is

Table 3

SUMMARY OF SURVEYS RETURNED FOR RESEARCH GROUP

N=538

	n	Percent	Cumulative Percent
California School for the Blind	100	18.6	18.6
California School for the Deaf	95	17.7	36.3
Diagnostice School for the Neurologically Handicapped, North	14	2.6	38.9
Sacramento Children's Home	10	1.9	40.8
Sierra Schools Language Arts Development Center	16	3.0	43.8
Napa County Development Center for Handicapped Minors	0	0.0	43.8
Napa State Hospital	0	0.0	43.8
Sacramento City Unified School District	169	31.4	75.2
San Juan Unified School District	134	24.9	100.0

Table 4

SUMMARY OF USEABLE SURVEYS FOR RESEARCH GROUP

N=476

	n	Percent	Cumulative Percent
California School for the Blind	87	18.2	18.2
California School for the Deaf	67	14.0	32.2
Diagnostice School for the Neurologically Handicapped, North	12	2.5	34.7
Sacramento Children's Home	10	2.1	36.8
Sierra Schools Language Arts	16	3.3	40.2
Sacramento City Unified School District	159	33.4	73.6
San Juan Unified School District	125	26.3	100.0

Table 5

SUMMARY OF USEABLE SURVEYS FOR VERIFICATION GROUP
N=193

	n	Percent
Acalanes Union High School District	15	7.8
Byron Union Elementary School District	12	6.2
Empire Union Elementary School District	27	14.0
Los Olivos Elementary School District	14	7.3
Monson-Sultana Joint Union School District	8	4.1
Oakdale Union Elementary School District	18	9.3
Patterson Joint Unified School District	23	11.9
Pixley Union Elementary School District	14	7.3
Stanislaus Union Elementary School District	5	2.6
Sylvan Union Elementary School District	25	13.0
Woodlake Union Elementary School District	17	8.8
Returned Without Designation	15	7.8

Table 6

DISTRIBUTION OF PUPILS BY AGE

AGE in Years	Research Group Total Returns n	Research Group Total Returns Percent	Research Group Useable Returns n	Research Group Useable Returns Percent	Verification Group n	Verification Group Percent
21+	3	0.6	3	0.6	0	0.0
19-20	18	3.3	13	2.7	3	1.6
17-18	52	9.7	46	9.6	7	3.6
15-16	70	13.0	60	12.6	20	10.4
13-14	106	19.7	96	20.3	30	15.5
11-12	105	19.5	93	19.7	52	26.9
9-10	75	13.9	66	13.8	36	18.7
7-8	61	11.3	57	11.9	39	20.2
5-6	30	5.6	28	5.9	6	3.1
3-4	15	2.8	14	2.9	0	0.0
Out of Range	3	0.6	0	0.0		
	Mean=12.01		Mean=11.96		Mean=11.19	
	Standard Deviation=3.88		Standard Deviation=3.82		Standard Deviation=3.04	
	Median=12.23		Median=12.17		Median=11.15	
	Number=523		Number=476		Number=193	

clear that there were fewer high school aged pupils and preschool and primary aged pupils included in the verification group than in the research groups and that there were more intermediate grade pupils included in the verification group.

In Tables 7 and 8 the distribution of pupils by gender and by grade level is reported. In examining the proportion of males and females it appears that there was a larger proportion of males in the verification group than in either of the other two groups. In examining Table 8 it appears that the major differences between the verification group and the research group were in the proportion of senior high school students and kindergarten-primary students. There was a larger proportion of junior high school students in the verification group and a larger proportion of preschool children in the verification group. There was a smaller proportion of kindergarten-primary pupils in the verification group than in the research group.

In short, there were notable differences between the research group with useable returns and the verification group. There were fewer differences between the research group with usable returns and the total research group on whom questionnaires were returned.

With these observed differences one might question whether or not a set of classification rules derived on the research group would be applicable to the verification group. Ordinarily, in experimental research where different treatments are administered to carefully defined groups this would be a major problem. However, in classification studies such as this one differences present much less a problem. If the classification rules do not apply, then, it is presumed that the classification system does not work. If, on the other hand, similar classifications can be made,

Table 7

DISTRIBUTION OF PUPILS BY GENDER

	Research Group Total Returns		Research Group Useable Returns		Verification Group	
	n	Percent	n	Percent	n	Percent
Female	215	40.0	185	38.7	62	32.1
Male	322	59.9	293	61.3	131	67.9

Table 8

DISTRIBUTION OF PUPILS BY GRADE LEVEL

	Research Group Total Returns		Research Group Useable Returns		Verification Group	
	n	Percent	n	Percent	n	Percent
Senior High School	93	17.3	83	17.4	3	1.6
Junior High School	91	16.9	80	16.7	38	36.8
Intermediate Grades	141	26.2	130	27.2	58	30.1
Kindergarten Primary-Grades	153	28.4	143	29.9	71	19.7
Preschool	50	9.3	42	8.8	3	11.9
Not Designated	10	1.9	0	0.0	0	0.0

it appears that a strong case can be made for the system. Differences would create conservative error; that is, abandonment of the system when it might work with a more similar group. In other words, if the classification system works with the two groups there is strong evidence that it is a reasonable system.

Least Restrictive Environment Descriptors

In Tables 9 through 16, the ratings of pupils on the section of the questionnaire labeled Least Restrictive Environment Descriptors are tabulated. Item, type of program and/or service is reported in Table 9. From that information it appears that a larger proportion of pupils in the verification group were enrolled in Special Education Resource Specialist programs and fewer in Special Education than were those in the research group. In addition, a larger proportion of the verification group received Supportive Services Only than did students in the research group. Almost 90% of the verification group were in regular schools, compared to only 51% of the research group in regular schools. Table 11 confirms the differences between the research group and the verification group noted above. Larger proportions of pupils in the research group received supportive services in addition to other programs than did pupils in the verification group.

The numbers of professionals and volunteers involved in the classroom are reported in Table 12. This table summarized responses to items 4, 5 and 6 of the Environment Descriptors. A larger proportion of pupils in the verification group were in classrooms where only one teacher was assigned. The inclusion of pupils with five and six or more teachers reflects participation of high school pupils at the California School for

Table 9

DISTRIBUTION OF PUPILS BY PROGRAM

	Research Group		Verification Group	
	n	Percent	n	Percent
Regular Education Class	27	5.7	4	2.1
Special Education Class	372	78.2	66	34.2
Special Education Resource Specialist Program	52	10.9	111	57.5
Special Education Supportive Services Only	11	2.3	10	5.2
Other	14	2.9	2	1.0

Table 10

DISTRIBUTION OF PUPILS BY TYPE OF SCHOOL

	Research Group		Verification Group	
	n	Percent	n	Percent
Regular School	243	51.1	169	87.6
Special School	212	44.5	24	12.4
Portable Building	21	4.4	0	0.0
Other	0	0.0	0	0.0

Table 11

DISTRIBUTION OF SUPPORTIVE SERVICES RECEIVED

	Research Group		Verification Group	
	n	Percent	n	Percent
Speech and Language Therapist	209	43.9	55	28.5
Social Worker	66	13.9	7	3.6
Psychologist	201	42.2	47	24.4
Psychiatrist	53	11.1	11	5.7
Physical Therapist	38	8.0	4	2.1
Occupational Therapist	37	7.8	3	1.6
Mobility and Orientation	42	8.8	13	6.7
Audiologist	123	25.8	12	6.2
Other	131	27.5	26	13.5

Table 12

NUMBERS OF PROFESSIONALS AND VOLUNTEERS IN CLASSES

	TEACHERS ASSIGNED				TEACHER AIDES				VOLUNTEERS			
	Research Group		Verification Group		Research Group		Verification Group		Research Group		Verification Group	
	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent
6 or More	25	5.3	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0
5	4	0.8	0	0.0	0	0.0	0	0.0	3	0.6	0	0.0
4	5	1.1	0	0.0	7	1.5	0	0.0	0	0.0	0	0.0
3	0	0.0	4	2.1	1	0.2	3	1.6	5	1.1	6	3.1
2	10	2.1	5	2.6	24	5.0	26	13.5	34	7.1	17	8.8
1	432	90.8	184	95.3	353	74.2	157	81.3	168	35.3	40	20.7
0	0	0.0	0	0.0	91	19.1	7	3.6	264	55.5	130	67.4

the Blind, the California School for the Deaf and the Diagnostic School for the Neurologically Handicapped, North. There are some differences, although not as extreme, in the number of teacher aides in the classrooms of the two groups. The same my be said of volunteers in these classrooms.

In examining the number of pupils enrolled in the programs as reported in Table 13, one can see that the verification group has a larger proportion of pupils participating in programs with more than ten students enrolled, while the research group has a larger number of pupils participating in programs where there are fewer than 10 pupils. This indicates the severity of the handicaps experienced by pupils in the research group. This finding was not unexpected since the California School for the Blind, the California School for the Deaf and the Diagnostic School for the Neurologically Handicapped, North were oversampled.

Table 14 indicates the time spent each day by pupils both in school and in a special education classroom. Both the research and verification groups seem to be comparable in the number of hours spent by pupils in school. More than 80% in both groups attended school for five or six hours per day. However, pupils in the verification group spent fewer hours in special education classes than did pupils in the research group, again an indication of the severity of handicapping conditions for pupils in the research group.

When one examines Table 15, the similarities between the two groups appear again. Both the research group and the verification groups spent similar numbers of days in school per year.

Table 16 reports program participation and corresponds to the last two items in the Least Restrictive Educational Environment Descriptors.

Table 13

NUMBER OF PUPILS ENROLLED IN PROGRAM

	Research Group		Verification Group	
	n	Percent	n	Percent
More than 21	93	19.5	73	37.8
18-21	18	3.8	10	5.2
15-17	46	9.7	29	15.0
11-14	62	13.0	28	14.5
7-10	176	37.0	27	14.0
4-6	58	12.2	15	7.8
1-3	23	4.8	11	5.7

Table 14

HOURS IN PROGRAM

	HOURS IN SCHOOL PER DAY				HOURS IN SPECIAL EDUCATION CLASS PER DAY			
	Research Group		Verification Group		Research Group		Verification Group	
	n	Percent	n	Percent	n	Percent	n	Percent
6 or More	240	50.4	127	65.8	154	32.4	17	8.8
5	148	31.1	61	31.6	114	23.9	28	14.5
4	68	14.3	5	2.6	89	18.7	11	5.7
3	15	3.2	0	0.0	43	9.0	23	11.9
2	0	0.0	0	0.0	26	5.5	23	11.9
1	5	1.1	0	0.0	28	5.9	38	19.7
Less than 1	0	0.0	0	0.0	22	4.6	53	27.5

Table 15

DAYS IN SCHOOL PER YEAR

	Research Group		Verification Group	
	n	Percent	n	Percent
251 - 300 or More	18	3.8	2	1.0
201 - 250	33	6.9	6	3.1
151 - 200	418	87.8	183	94.8
101 - 150	6	1.3	2	1.0
51 - 100	0	0.0	0	0.0
1 - 50	1	0.2	0	0.0

Table 16

PROGRAM PARTICIPATION

	Amount of time per day that pupil interacts with pupils in other classes who exhibit lesser disabilities				Amount of time per day that pupil interacts with nonspecial education pupils			
	Research Group		Verification Group		Research Group		Verification Group	
	n	Percent	n	Percent	n	Percent	n	Percent
6 Hours or More	24	5.0	11	5.7	6	1.3	12	6.2
5 Hours	21	4.4	50	25.9	24	5.0	72	37.3
4 Hours	16	3.4	12	6.2	37	7.7	17	8.8
3 Hours	31	6.5	28	14.5	37	7.8	34	17.6
2 Hours	54	11.3	27	14.0	60	12.6	44	22.8
Less than 1 Hr.	117	24.6	12	6.2	104	21.8	10	5.2
None	213	44.7	53	27.5	208	43.7	4	2.1

Reported is the amount of time per day that pupils interact with others who are less severely disabled or are in nonspecial education programs. Pupils in the research group interacted less fequently with pupils who have lesser disabilities and with pupils in nonspecial education classes than did pupils in the verification group. Again, the inclusion of large proportions of pupils from special state schools inflated this figure.

What these findings indicate is that there are striking dissimilarities between the two groups which might make the classification system less generalizable from one group to the other. On the other hand, providing a description of programs in which pupils with similar characteristics have found success would give additional options to assessment teams in planning programs for pupils who are being placed in special education classes.

Pupil Characteristic Description

Tables 17 through 33 present summaries of responses to the pupil characteristic description of the survey. The section on Instructional Performance appears in Tables 17 through 20. The simplest way to look at reading and arithmetic instructional level is to examine medians. It appears that for the research group the median instructional level in reading was between the second and third grade level; that is, the median is 4.49 by assigning the prereadiness level the value 1, the readiness level the value 2, and so on. The verification group had a median reading level of 4.68, placing it between the second and third grade levels, as well. For arithmetic the median rating was 4.99 for the research group, or almost at the third grade level; and 5.1 for the verification group, or well into the third grade level. Instructional level in

Table 17

PUPIL'S INSTRUCTIONAL GRADE LEVEL

	READING				ARITHMETIC			
	Research Group		Verification Group		Research Group		Verification Group	
	n	Percent	n	Percent	n	Percent	n	Percent
Not Applicable	13	2.7	9	4.7	23	4.8	7	3.6
12	4	0.8	0	0.0	1	0.2	0	0.0
11	5	1.1	0	0.0	0	0.0	0	0.0
10	4	0.8	2	1.0	2	0.4	4	2.1
9	10	2.1	1	0.5	12	2.5	0	0.0
8	5	1.1	4	2.1	11	2.3	3	1.6
7	10	2.1	5	2.6	9	1.9	2	1.0
6	25	5.3	13	6.7	36	7.6	16	8.3
5	38	8.0	17	8.8	46	9.7	17	8.8
4	60	12.6	21	10.9	61	12.8	33	17.1
3	63	13.2	31	16.0	72	15.1	37	19.1
2	66	13.9	29	15.0	70	14.7	28	14.5
1	79	16.6	41	21.2	54	11.3	36	18.7
Readiness	49	10.3	18	9.3	39	8.2	8	4.1
Pre-Readiness	45	9.5	3	1.6	40	8.4	2	1.0

Table 18

PUPIL'S INSTRUCTIONAL LEVEL IN HANDWRITING

	Research Group		Verification Group	
	n	Percent	n	Percent
Not Applicable	51	10.7	21	10.9
Cursive	237	49.8	92	47.7
Manuscript	122	25.6	62	32.1
Readiness	27	5.7	12	6.2
Pre-Readiness	39	8.2	6	3.1

Table 19

PUPIL'S INSTRUCTIONAL MODE IN READING

	Research Group		Verification Group	
	n	Percent	n	Percent
Not Applicable	310	65.1	34	17.6
Brialle	33	6.9	1	0.5
Large Print with Correction	32	6.7	6	3.1
Large Print without Correction	40	8.4	12	6.2
Ordinary Print without Correction	61	12.8	140	72.5

Table 20

PUPIL'S INSTRUCTIONAL MODE IN LISTENING

	Research Group		Verification Group	
	n	Percent	n	Percent
Not Applicable	80	16.8	0	0.0
Loud Environmental Sounds with Hearing Aid	52	10.9	30	15.5
Loud Voice with Hearing Aid	17	3.6	2	1.0
Conversation Speech at 3-5 ft. with Hearing Aid	50	10.5	5	2.6
Normal Conversation without Hearing Aid	277	58.2	156	80.8

handwriting was quite comparable for both groups. The instructional mode in reading showed that there was a greater percentage of visually handicapped individuals in the research group than in the verification group. A larger proportion of individuals in the research group had hearing difficulties than did individuals in the verification group.

Tables 21 through 24 summarize the items on communication performance. Again, the verification group appeared to have had fewer difficulties with verbal communication than did the research group. This is reflective of the larger sampling in the research group of those who are hearing impaired than in the verification group.

The third section, personal adjustment, is summarized in Tables 25 through 31. There appeared to be few differences between the research group and the verification group on personality orientation and on respect for the property of others. However, in the area of socialization it appeared that pupils in the research group had larger numbers in the fair and poor categories of socializing with other pupils in special education classes, with other pupils outside special education classes and with adults in the school than did the verification group. In addition, a larger proportion of the research group responded fair or poor in responding to the orders of adults than did pupils in the verification group. On the other hand, it appeared from the results reported in Table 27 that a smaller proportion of pupils in the verification group completed assignments in special education classes and outside special education classes in a good to excellent fashion than did pupils in the research group. The summary in Table 28 indicated that a large proportion of those in the verification group had fair to poor behavior during transportation, during lunch, and during recess than did those in the research group.

Table 21

PUPIL'S VERBAL EXPRESSIVE LANGUAGE LEVEL

	Research Group		Verification Group	
	n	Percent	n	Percent
Cannot be Understood by Others	64	13.4	0	0.0
Can be Understood Only by Familiar Listeners	66	13.9	5	2.6
Can be Understood by Some Unfamiliar Listeners	82	17.2	26	13.5
Can be Understood by Anyone	264	55.5	162	83.9

Table 22

PUPIL IMITATES SPEECH SOUNDS

	Research Group		Verification Group	
	n	Percent	n	Percent
Cannot	30	6.3	0	0.0
Sounds	55	11.6	5	2.6
Words	64	13.4	26	13.5
Sentences	327	68.7	162	83.9

Table 23

PUPIL SPEAKS IN ___ SENTENCES

	Research Group		Verification Group	
	n	Percent	n	Percent
Cannot	56	11.8	0	0.0
Incomplete	101	21.2	25	13.0
Short Complete	138	29.0	78	40.4
Complex	181	38.0	90	46.6

Table 24

PUPIL'S PRIMARY EXPRESSIVE COMMUNICATION MODE

	Research Group		Verification Group	
	n	Percent	n	Percent
Doesn't Communicate	17	3.6	0	0.0
Gestures Devised by Pupil	17	3.8	3	1.6
Expression Approaches for Hearing Impaired	124	26.1	1	0.5
Normal Verbal Expression	318	66.8	189	97.9

Table 25

PUPIL'S PERSONALITY ORIENTATION

	Research Group		Verification Group	
	n	Percent	n	Percent
Withdrawn	55	11.6	18	9.3
Passive/Aggressive	108	22.7	39	20.2
Aggressive	92	19.3	32	16.6
Adequate	221	46.4	104	53.9

Table 26

SOCIALIZING WITH OTHERS

	OTHER PUPILS IN THE SPECIAL EDUCATION CLASS				OTHER PUPILS OUTSIDE SPECIAL EDUCATION CLASS				ADULTS IN THE SCHOOL				RESPONSE TO ORDERS EXPRESSED ADULT IN THE SCHOOL			
	Research Group		Verification Group		Research Group		Verification Group		Research Group		Verification Group		Research Group		Verification Group	
	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent
Poor	61	12.8	14	7.3	114	23.9	29	15.0	36	7.6	17	8.8	48	10.1	22	11.4
Fair	122	25.6	56	29.0	159	33.4	48	24.9	140	29.4	48	24.9	126	26.5	47	24.4
Good	166	34.9	61	31.6	146	30.7	73	37.8	198	41.6	70	36.3	183	38.4	54	28.0
Excellent	127	26.7	62	32.1	57	12.0	43	22.3	102	21.4	57	29.5	119	25.0	70	36.3

Table 27

COMPLETION OF ASSIGNMENTS

	REQUIRED IN SPECIAL EDUCATION CLASS				REQUIRED OUTSIDE SPECIAL EDUCATION CLASS			
	Research Group		Verification Group		Research Group		Verification Group	
	n	Percent	n	Percent	n	Percent	n	Percent
Not Applicable	32	6.7	5	2.6	230	48.3	15	7.8
Poor	40	8.4	9	9.8	30	6.3	44	22.8
Fair	87	18.3	57	29.5	66	13.9	56	29.0
Good	176	37.0	56	29.0	96	20.2	60	31.1
Excellent	141	29.6	56	29.0	54	11.3	18	9.3

Table 28

BEHAVIOR

	DURING SCHOOL TRANSPORTATION				DURING LUNCH				DURING RECESS				RESPECT FOR PROPERTY OF OTHERS AND ADULTS IN SCHOOL			
	Research Group		Verification Group		Research Group		Verification Group		Research Group		Verification Group		Research Group		Verification Group	
	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent
Not Applicable	182	38.2	66	34.2	16	3.4	0	0.0	55	11.6	11	5.7	2	0.4	0	0.0
Poor	19	4.0	8	4.1	25	5.3	14	7.3	24	5.0	20	10.4	41	8.6	13	6.7
Fair	56	11.8	25	13.0	100	21.0	42	21.8	99	20.8	41	21.2	67	14.1	32	16.6
Good	125	26.3	48	24.9	198	41.6	75	38.9	186	39.1	71	36.8	182	38.2	56	29.0
Excellent	94	19.7	46	23.8	137	28.8	62	32.1	112	23.5	50	25.9	184	38.7	92	47.7

The area of self-care is summarized in Tables 29 through 31. Briefly, it appeared that a larger proportion of pupils in the verification group were able to dress independently, to keep themselves clean, to toilet appropriately and to clean up after activities than pupils in the research group. A larger proportion of those in the verification group put things away without being reminded than did those in the research group. And a larger proportion of those in the research group needed help in feeding than did those in the verification group. All in all, this may indicate that a larger proportion of those in the research group had more severe difficulties than did those in the verification group.

Tables 32 and 33 report findings on physical performance. None of the pupils in the verification group required assistance or prostheses in moving from place to place in school or had vision so limited that they had to move about the school with the assistance of a guide or a cane.

Principal Components Analysis

Pupil Characteristic Description items were submitted to principal components analysis, (Childs). The intercorrelation matrix is presented on the following page in Table 34. Many of the intercorrelations are low in magnitude because of the restriction in range in the item responses. This intercorrelation matrix was reduced with principal components analysis to a smaller number of elements or factors. Criterion for inclusion as a factor was an eigenvalue of 1.0. Using this criterion, nine factors were extracted, accounting for 60.96% of the variance. A summary is presented in Table 35. Varimax rotation to simple criterion was employed

Table 29

SELF-CARE: DRESSING INDEPENDENTLY

	Research Group		Verification Group	
	n	Percent	n	Percent
Cannot	14	2.9	0	0.0
Most Clothes	47	9.9	2	1.0
Completely Except for Tying Shoes	44	9.2	9	4.7
Completely	371	77.9	182	94.3

Table 30

SELF-CARE

	SELF-CARE: KEEPING BODY & CLOTHING CLEAN				SELF-CARE: TOILETTING				SELF-CARE: CLEANS UP AFTER ACTIVITIES				SELF-CARE: PUTS THINGS AWAY WITHOUT BEING REMINDED			
	Research Group		Verification Group		Research Group		Verification Group		Research Group		Verification Group		Research Group		Verification Group	
	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent
Never	13	2.7	0	0.0	8	1.7	0	0.0	19	4.0	2	1.0	26	5.5	2	1.0
Seldom	35	7.4	9	4.7	9	1.9	4	2.1	43	9.0	9	4.7	53	11.1	12	6.2
Sometimes	127	26.7	34	17.6	34	7.1	5	2.6	189	39.7	72	37.3	228	47.9	79	40.9
Always	301	63.2	150	77.7	425	89.3	184	95.3	225	47.3	110	57.0	169	35.5	100	51.8

Table 31

SELF-CARE: FEED INDEPENDENTLY

	Research Group		Verification Group	
	n	Percent	n	Percent
Cannot	6	1.3	0	0.0
Can, but Difficult	8	1.7	0	0.0
Needs Help Sometimes	66	13.9	3	1.6
Never Needs Help, No Difficulty	396	83.2	190	98.4

Table 32

PUPIL'S LOCOMOTION IN SCHOOL SETTING

	Research Group		Verification Group	
	n	Percent	n	Percent
Immobile, Must Be Carried	3	0.6	0	0.0
Wheelchair	6	1.3	0	0.0
Walker or Crutches	5	1.1	0	0.0
No Assistance or Prothesis Necessary	462	97.1	193	100.0

Table 33

PUPIL'S MOBILITY LEVEL IN THE SCHOOL SETTING

	Research Group		Verification Group	
	n	Percent	n	Percent
Needs Sighted Guide	13	2.7	0	0.0
Familiar Places with Cane	9	1.9	0	0.0
Familiar and Unfamiliar Places with Cane	13	2.7	0	0.0
Familiar and Unfamiliar Places with Own Vision	441	92.6	193	100.0

Table 34 - INTERCORRELATION MATRIX

EDUCATION

	PUPIL1	PUPIL2	PUPIL3	PUPIL4	PUPIL5	PUPIL6	PUPIL7	PUPIL8	PUPIL9	PUPIL10
PUPIL1	1.0000	.6609	.4678	.0112	.0309	.2179	.2640	.2743	.1769	.1143
PUPIL2	.6609	1.0000	.3640	-.0334	-.0409	.1349	.1107	.2130	.0250	.0968
PUPIL3	.4678	.3640	1.0000	.1757	-.0148	.1745	.2229	.1442	.0904	.1042
PUPIL4	.0112	-.0334	.1757	1.0000	.3916	.0980	.1050	.0596	-.0538	.0806
PUPIL5	.0309	-.0409	-.0148	.3916	1.0000	.1130	.1590	.1161	.1823	.0878
PUPIL6	.2179	.1349	.1745	.0980	.1130	1.0000	.2725	.4329	.3296	.0167
PUPIL7	.2640	.1107	.2229	.1050	.1590	.2725	1.0000	.2353	.4436	.0491
PUPIL8	.2743	.2130	.1442	.0596	.1161	.4329	.2353	1.0000	.1767	.0220
PUPIL9	.1769	.0250	.0904	-.0538	.1823	.3296	.4436	.1767	1.0000	-.0396
PUPIL10	.1143	.0968	.1042	.0806	.0878	.0167	.0491	.0220	-.0396	1.0000
PUPIL11	.0713	-.0259	.0461	-.0419	-.0325	.0321	.0298	.0979	-.0029	.2002
PUPIL12	-.0029	-.0506	-.0650	-.1450	-.0148	-.0079	-.0126	.0601	.0734	-.0457
PUPIL13	.0080	-.0204	.0166	-.0433	-.1126	-.0109	.0802	.0119	.0292	.1312
PUPIL14	.1768	.0492	.1080	-.0748	-.1262	.0278	.1093	.0603	.0142	.1531
PUPIL15	-.0261	-.1303	.1015	.4146	.1404	-.0073	.0708	-.0315	.0527	.1426
PUPIL16	.0753	.0435	.1310	.2316	.0321	.0228	-.0014	-.0722	-.0878	.1508
PUPIL17	-.0919	-.0808	-.0820	-.0853	.0262	-.1495	-.0754	-.1230	-.2269	.0758
PUPIL18	.0021	-.0340	.0795	.1529	.1243	.0560	.0095	.0013	-.0375	.1496
PUPIL19	-.2098	-.2577	-.0331	.0841	.0191	.0710	.0707	-.0240	.0857	.0734
PUPIL20	.1048	.0399	.0087	.0294	.0001	.0257	.0067	.0381	.0073	.1948
PUPIL21	.3219	.2008	.2756	.2611	-.0253	.2159	.2745	.1102	.0824	.0191
PUPIL22	.2543	.2154	.3629	.1563	-.0503	.1210	.0563	.0058	-.0290	.1701
PUPIL23	.0758	-.0133	.1496	.2873	.0151	.0258	.0889	.0207	-.0118	.0732
PUPIL24	.1731	.1406	.2319	.0503	-.0046	.1077	.0874	.1052	.0210	.1747
PUPIL25	.1543	.1050	.1947	.0887	.0567	.1166	.0666	.0947	.0165	.1206
PUPIL26	.1722	.1305	.2456	.3576	-.0321	.0751	.2075	.0330	.0518	.0107
PUPIL27	-.2411	-.2136	-.0891	.1579	.1145	-.0731	-.0242	-.0426	-.0079	.0390
PUPIL28	-.0994	-.0360	-.1603	-.0396	-.0808	-.1479	-.0576	-.1810	-.0990	-.0656

Table 34 - Continued

EDUCATION

	PUPIL11	PUPIL12	PUPIL13	PUPIL14	PUPIL15	PUPIL16	PUPIL17	PUPIL18	PUPIL19	PUPIL20
PUPIL1	.0713	-.0025	.0050	.1766	-.0261	.0753	-.0919	.0021	-.2696	.1048
PUPIL2	-.0259	-.0506	-.0204	.0692	-.1303	.0935	-.0808	-.0380	-.2577	.0399
PUPIL3	.0481	-.0650	.0156	.1060	.1615	.1310	-.0820	.0795	-.0331	.0087
PUPIL4	-.0419	-.1450	-.0483	-.0748	.4148	.2316	-.0853	.1529	.0841	.0294
PUPIL5	-.0325	-.0148	-.1126	-.1262	.1404	.0321	.0262	.1243	.0191	.0001
PUPIL6	.0321	-.0079	-.0109	.0278	-.0073	.0228	-.1495	.0560	.0710	.0257
PUPIL7	.0298	-.0126	.0002	.1093	.0708	-.0014	-.0754	.0095	.0707	.0067
PUPIL8	.0979	.0601	.0119	.0603	-.0315	-.0722	-.1230	.0013	-.0240	.0381
PUPIL9	-.0029	.0734	.0292	.0142	.0527	-.0678	-.2269	-.0375	.0857	.0073
PUPIL10	.2002	-.0457	.1312	.1531	.1426	.1508	.0758	.1496	.0734	.1948
PUPIL11	1.0000	.3535	.3552	.2255	.1515	-.0067	.0255	.2245	.1325	.2477
PUPIL12	.3535	1.0000	.2550	.1285	-.0069	-.1575	.0144	-.0627	.0206	.0907
PUPIL13	.3552	.2550	1.0000	.4035	.1677	.0508	.0015	.1147	.1144	.2669
PUPIL14	.2255	.1285	.4035	1.0000	.1947	.0610	.0962	.1381	.1194	.3879
PUPIL15	.1515	-.0069	.1677	.1947	1.0000	.2401	-.0213	.1312	.1538	.1177
PUPIL16	-.0067	-.1575	.0508	.0610	.2401	1.0000	-.0170	.2016	.0794	.0830
PUPIL17	.0255	.0144	.0015	.0962	-.0213	-.0170	1.0000	.0727	.1468	.0392
PUPIL18	.2245	-.0627	.1147	.1381	.1312	.2016	.0727	1.0000	.3008	.2338
PUPIL19	.1325	.0206	.1144	.1194	.1536	.0794	.1468	.3008	1.0000	.0961
PUPIL20	.2477	.0907	.2669	.3879	.1177	.0830	.0392	.2338	.0981	1.0000
PUPIL21	-.0444	-.0614	.0752	.1335	.1929	.1353	-.1733	.1661	-.0583	.1844
PUPIL22	.0543	-.0958	.0776	.1750	.1768	.1841	-.0272	.1379	-.0149	.2152
PUPIL23	.0147	-.0237	.0560	.0627	.2753	.1617	-.0916	.0316	.0407	.0909
PUPIL24	.0226	-.0233	.0355	.1620	.0707	.0953	.1069	.1349	.0105	.2671
PUPIL25	.0173	-.0539	.0138	.0948	.0402	.0959	.1174	.1189	-.0079	.2132
PUPIL26	.0264	-.0456	.1060	.1453	.3338	.1830	-.1968	.1494	.0126	.1596
PUPIL27	-.0474	-.1180	-.0394	-.0627	.2429	.0620	-.0001	.0481	.1376	-.0752
PUPIL28	.0141	-.0020	.0304	-.0059	-.0725	-.0000	-.0050	-.0749	-.0726	.0022

Table 34 - Continued

EDUCATION

	PUPIL21	PUPIL22	PUPIL23	PUPIL24	PUPIL25	PUPIL26	PUPIL27	PUPIL28
PUPIL1	.3219	.2543	.0756	.1731	.1563	.1722	-.2411	-.0984
PUPIL2	.2806	.2154	-.0133	.1406	.1650	.1306	-.2136	-.0360
PUPIL3	.3758	.3029	.1458	.2319	.1947	.2656	-.0691	-.1663
PUPIL4	.2011	.1503	.2073	.0003	.0887	.3576	.1879	-.0398
PUPIL5	-.0253	-.0503	.0151	-.0046	.0567	-.0321	.1145	-.0808
PUPIL6	.2159	.1210	.0258	.1077	.1166	.0751	-.0731	-.1479
PUPIL7	.2745	.0563	.0809	.0874	.0666	.2075	-.0242	-.0578
PUPIL8	.1102	.0058	.0207	.1052	.0647	.0330	-.0426	-.1810
PUPIL9	.0024	-.0290	-.0118	.0210	.0165	.0518	-.0079	-.0990
PUPIL10	.0191	.1701	.0732	.1747	.1206	.0107	.0390	-.0658
PUPIL11	-.0444	.0543	.0147	.0226	.0173	.0264	-.0474	.0141
PUPIL12	-.0814	-.0992	-.0237	-.0233	-.0539	-.0896	-.1180	-.0020
PUPIL13	.0752	.0775	.0560	.0658	.0138	.1080	-.0558	.0304
PUPIL14	.1335	.1750	.0627	.1620	.0946	.1453	-.0627	-.0059
PUPIL15	.1529	.1768	.2753	.0707	.0402	.3338	.2429	-.0725
PUPIL16	.1353	.1841	.1417	.0953	.0959	.1830	.0820	-.0000
PUPIL17	-.1733	-.0272	-.0916	.1069	.1174	-.1968	-.0001	-.0060
PUPIL18	.1661	.1379	.0316	.1349	.1189	.1494	.0481	-.0749
PUPIL19	-.0583	-.0149	.0407	.0105	-.0079	.0126	.1378	-.0726
PUPIL20	.1844	.2152	.0909	.2671	.2132	.1596	-.0752	.0022
PUPIL21	1.0000	.4288	.2754	.2528	.1443	.6318	-.0037	.0202
PUPIL22	.4288	1.0000	.3459	.4439	.3008	.3404	-.0219	.0319
PUPIL23	.2754	.3459	1.0000	.1326	.0390	.3502	.0979	-.0345
PUPIL24	.2528	.4439	.1326	1.0000	.7183	.1500	-.0381	-.0345
PUPIL25	.1443	.3008	.0390	.7183	1.0000	.1216	-.0425	.0003
PUPIL26	.6318	.3404	.3502	.1500	.1216	1.0000	.1270	.0712
PUPIL27	-.0037	-.0219	.0979	-.0381	-.0425	.1270	1.0000	.0327
PUPIL28	.0202	.0319	-.0345	-.0345	.0003	.0712	.0327	1.0000

Table 35 - Principal Components Analysis

EDUCATION

- 1 CIPLE COMPONENTS ANALYSIS

FACTOR	EIGENVALUE	PERCENT TRACE	CUMULATIVE PERCENT
1	4.1141	.1471	.1471
2	2.5243	.0902	.2372
3	2.2910	.0819	.3187
4	1.9892	.0710	.3896
5	1.6605	.0593	.4491
6	1.3147	.0470	.4960
7	1.1343	.0405	.5365
8	1.0345	.0370	.5735
9	1.0117	.0361	.6096
10	.9382	.0335	.6431
11	.8738	.0312	.6743
12	.8625	.0308	.7051

VARIABLE	COMMUNALITY
PUPIL1	.7816
PUPIL2	.7233
PUPIL3	.6757
PUPIL4	.7226
PUPIL5	.8211
PUPIL6	.6385
PUPIL7	.6941
PUPIL8	.7794
PUPIL9	.7802
PUPIL10	.6560
PUPIL11	.7319
PUPIL12	.7180
PUPIL13	.5541
PUPIL14	.7191
PUPIL15	.6282
PUPIL16	.5226
PUPIL17	.7447
PUPIL18	.7390
PUPIL19	.6893
PUPIL20	.7201
PUPIL21	.7269
PUPIL22	.5783
PUPIL23	.5472
PUPIL24	.8383
PUPIL25	.7859
PUPIL26	.7218
PUPIL27	.6923
PUPIL28	.8130

Table 35 - Continued

EDUCATION

VARIMAX ROTATION - 9 FACTORS									
COLUMN =	1	2	3	4	5	6	7	8	9
VARIABLE									
[illegible]1	-.1069	.0323	.0543	.1588	-.0822	-.0309	.0151	.0746	-.1021
[illegible]2	-.0322	.0302	-.0417	.0143	-.0710	.0326	-.0315	-.0175	-.0752
[illegible]3	-.3432	.2216	-.0265	.1588	-.1274	.0208	-.0727	.3410	-.0058
[illegible]4	-.0111	-.0526	-.1021	-.0518	-.0190	-.0189	-.1557	.0306	-.0727
[illegible]5	.0967	-.0254	-.0604	.1765	-.0302	-.0257	-.0461	-.0362	-.1099
[illegible]6	-.0376	.1001	-.0201	.3242	-.1203	-.0311	-.1458	.1772	-.6300
[illegible]7	-.1273	.1526	.0323	.7913	-.0270	-.0951	-.0038	.0149	-.0699
[illegible]	.0356	.2015	.0953	.1525	-.0039	-.1315	.0321	.2547	-.6225
[illegible]	.0241	-.0147	.0204	.7726	.0170	-.0416	.1004	.0081	-.2430
[illegible]10	.0480	.2234	.2823	-.0034	-.1521	-.3105	-.2603	.1669	.2726
[illegible]11	.0306	.0189	.7363	-.1002	.0361	-.1087	-.0896	.0501	-.1307
[illegible]12	.0946	-.0896	.6177	-.0553	.0389	-.0215	.4044	.0365	-.1905
[illegible]13	-.1163	.0024	.7681	.1208	.1163	.1190	-.0445	-.0362	.1151
[illegible]14	-.1191	.1311	.5737	.2140	-.1245	.2192	-.1807	.0401	.2230
[illegible]15	-.0[illegible]9	-.1806	.2344	.0937	.0359	-.3424	-.0717	.2254	.2319
[illegible]16	-.2033	.1491	-.0544	-.1139	.0174	-.1596	-.4716	.0416	.1848
[illegible]17	.3150	-.0853	.0[illegible]	-.0467	-.2036	-.0248	-.1087	.2250	.4725
[illegible]18	-.0271	-.0730	.1[illegible]	-.0769	-.0519	-.0970	-.7630	-.0113	-.1522
[illegible]19	.0037	-.4016	.1472	.2215	-.0104	.1004	-.4995	.2690	.0115
[illegible]20	-.0779	.0371	.5[illegible]	-.0194	-.3179	.0144	-.2987	-.1938	-.0436
[illegible]21	-.6526	.2560	-.0[illegible]	.1795	-.1526	.1091	-.1777	-.1801	-.1963
[illegible]22	-.5053	.2180	.0543	-.0656	-.4096	.0586	-.1223	-.0059	.0042
[illegible]23	-.6577	-.0630	.0567	-.0769	-.0835	-.0549	.1006	.1730	.0044
[illegible]24	-.1476	.0785	.0413	.0312	-.1907	.0056	-.0246	.0394	-.0145
[illegible]25	-.0302	.0140	-.0054	.0269	-.0[illegible]	-.0871	-.0285	-.0196	-.0291
[illegible]26	-.7[illegible]	.0470	.0423	.1406	-.1451	.0233	-.1496	-.2109	-.0746
[illegible]27	-.2512	-.3970	-.1303	.0056	.0531	-.2559	-.0441	.0424	.1934
[illegible]28	-.0135	-.0517	.0313	-.0091	-.0147	.0076	.0430	-.7920	.1768

EDUCATION

VARIABLE	COMMUNALITY
[illegible]	.7765
[illegible]	.7084
[illegible]	.5875
[illegible]	.6453
[illegible]	.7443
[illegible]	.5951
[illegible]	.6818
[illegible]	.5122
[illegible]	.5717
[illegible]	.4146
[illegible]	.5950
[illegible]	.6043
[illegible]	.5492
[illegible]	.5525
[illegible]	.5274
[illegible]	.6021
[illegible]	.4779
[illegible]	.6854
[illegible]	.6350
[illegible]	.4971
[illegible]	.6753
[illegible]	.5553
[illegible]	.5098
[illegible]	.6206
[illegible]	.7731
[illegible]	.6154
[illegible]	.3576
[illegible]	.6741

FACTOR	ROOTS	VAR PROP
1	2.761	.0966
2	2.418	.0863
3	2.252	.0804
4	1.679	.0600
5	2.041	.0787
6	1.532	.0547
7	1.611	.0567
8	1.217	.0435
9	1.534	.0548

and is reported below, as well.

One may summarize the content of the nine variables in this fashion:

Factor 1

15. Completion of assignments required in special education class
21. Self-Care: Dressing independently
22. Self-Care: Keeping body and clothing clean
23. Self-Care: Toileting
26. Self-Care: Feeding independently

Factor 2

1. Pupil's instructional grade level in reading
2. Pupil's instructional grade level in arithmetic
3. Pupil's instructional level in handwriting
27. Pupil's locomotion in the school setting

Factor 3

11. Socializing with other pupils in the special education class
12. Socializing with other pupils outside the special education class
13. Socializing with adults in the school
14. Response to orders expressed by adults in the school
20. Respect for the property of others and adults in the school

Factor 4

7. Pupil imitates speech sounds
9. Pupil's primary expressive communication mode

Factor 5

24. Self-Care: Cleans up after activities
25. Self-Care: Puts things away without being reminded

Factor 6

4. Pupil's instructional mode in reading (Visual Activity)
5. Pupil's instructional mode in listening (Auditory Activity)
10. Pupil's personality orientation

Factor 7

15. Completion of assignments required in special education classroom
16. Completion of assignments required outside the special education classroom
18. Behavior during lunch
19. Behavior during recess

Factor 8

28. Pupil's mobility level in the school setting

Factor 9

6. Pupil's verbal expressive language level
8. Pupil speaks in ___ sentences
27. Pupil's locomotion in the school setting

Cluster Analysis

Next a linear combination of items with major loadings on each factor was created making a subscale for each factor; that is, items loading on each factor were summed obtaining a total score for that factor. Each item was assigned only to one subscale, the one on which it had largest absolute value for a loading. These total scores for the nine factors were then submitted to a cluster analysis program (Everitt). Essentially, this procedure converts all possible points to distance measures and

agglomorates points which are closest together into groups. New groups are created by this technique in such a way that their multivariate averages or centroids provide maximum separation for the groups. Many different combinations were attempted creating as many as 32 different groups. However, for the sake of parsimony and feasibility it was decided to have no more than ten groups. In examining the results eight clusters appeared to describe adequately the characteristics of the groupings. This solution explained 49.69% of the variance.

The groups may be typified by the way in which the nine factors loaded. Group 1 had extremely low scores on Factor 8 which dealt with vision; it appeared that this group was a visually handicapped group. Group 2 had a very high centroid on Factor 2, moderately low centroids on Factors 1, 6 and 7, and a low centroid on Factor 5. This group may be typified as high academic achievers whose self care, mode of learning, behavior and independence are somewhat low. The third group had moderately high centroids on Factor 5 and a low centroid on Factor 3. It may be described as independent, yet having some difficulty with socializing and accepting adult's directions. The fourth group had a moderately low centroid on Factor 5 and a low centroid on Factor 6, indicating low independence and some difficulty with mode of instruction and/or personality orientation. Group 5 had moderately high centroids on Factor 3, high centroids on Factors 1, 4 and 9. This group may be described as good at socializing and following the directions of adults; good at self-care and communication. Group 6 had very low centroids on Factor 1, moderately low centroids on Factors 2 and 6 and low centroids on Factors 7 and 9. These pupils were very low in self-care; moderately low in academics and mode of instruction and/or personality orientation; and

low in behavior and communication. The seventh group had moderately high centroids on Factor 7, high centroids on Factors 1 and 5, and low centroids on Factors 4 and 9. They may be typified as reasonable at self-care and independence, well behaved with some communications problems. The eighth group had a moderately low centroid on Factor 6 and may be typified as having mode of learning and/or personality problems.

Program variables were also clustered. As many as 23 clusters were identified; however, the eight cluster solution which accounted for 41.5% of the variance was selected. Groups may be typified in this fashion. Group 1 had very high scores on program items 3b and 3d; moderately high scores on items 3c, 3h and 3i; high scores on items 2, 3a, 9 and low scores on 5 and 12. This group might be described as pupils in special schools who are high users of supportive services. Group 2 had a moderately low centroid on item 2 which indicates that these are pupils in regular schools. Group 3 had a very high centroid on item 3f and a moderately high centroid on item 3e, with high centroids on items 1, 2, 9, 14, 17 and 18. This group tended to be made up of students in special education classrooms and special schools; they had physical problems. There were larger numbers of teachers assigned to these students. They also spent more time in special education classrooms and more days in school than other students. Group 4 had very high centroids on item 12 and moderately high centroids on items 3d and 3h. They had high centroids on items 2, 3a, 3c, 8 and 9, and a moderately low centroid on item 5. These pupils tended to be high school students in special schools with a larger number of teachers and a lower number of paid aides assigned to their programs than elementary students. They spent more hours a day in school than elementary students, spent more hours in the special education program than other students and used the

services of psychologists and audiologists. Group 5 had moderately high centroids on 3c, 3h and 3i. These students appeared to be hard of hearing and use the services of psychologists. Group 6 had a moderately low centroid on item 9, a moderately high centroid on item 12, high centroids on items 1, 7 and 11, and low centroids on items 2, 3c and 3h. These tended to be students who were in resource specialist programs. They tended to be in regular schools, did not use the services of psychologists or audiologists, had a higher number of pupils enrolled in their program than usual, spent fewer hours a day in special education programs, spent more time with pupils who exhibit lesser disabilities, and spent more time with pupils who are in non-special education programs. Group 7 had high centroids on item 2 and low centroids on items 3a, 3c and 12. These students tended to be in special schools, did not use the services of the speech and language therapist or psychologists, and did not interact with nonspecial education students. Group 8 had a very high centroid on item 3g, a high centroid on items 2 and 9, and centroids on items 3i and 10. These students may be typified as having been in a special school having mobility training, little use of other services, spending more hours a day in the special education program than the average, and spending fewer days in school than other students.

Discriminant Analysis

The next procedure attempted to match pupils grouped on Pupil Characteristic Descriptions with pupils grouped by Educational Environment Descriptors. The point of this procedure was to see whether a prediction to program could be made from pupil descriptors. The technique employed to do this is called linear descriminant function (Amick and Walberg, 1975).

With this procedure multiple sets of equations are employed to predict a group's positions in a hyperspace from a multiple set of variables. Here the linear combinations derived from the factor analysis were employed as the predictors and educational program groups were the criteria. Several sets of equations were employed; however, a two equation solution was selected so that it could be represented in a graph. The summaries of this analysis appear in Table 36. First, group counts are shown; groups varied in size from 11 to 116. Second, means and standard deviations for each factor are shown by group. Next, statistics which indicate the significance of the inclusion of a variable are shown; each factor contributed significantly to the equation. Finally, the standardized descriminant function coefficients are shown and the prediction results are shown. Seventy percent of the cases were correctly classified into their groups. Thus, only three in ten would have been misclassified.

Cross Validation

In order to determine how prediction equations derived from the discriminant analysis worked with a general population, the discriminant functions were applied to a set of data collected from Master Plan districts on pupils who functioned successfully in their special education programs. Table 37 presents a summary of group assignments for both the research group and the verification group. It cross-references membership in Pupil Characteristic Clusters by membership in Program Clusters. Ideally, if the research and the verification groups had identical characteristics percentages in the cells would be identical; however, that was not the case. By examining the last two columns one can see that pupils in the two groups

ANALYSIS OF PUPIL AND PROGRAM CLUSTERS

Table 36 - DISCRIMINANT ANALYSIS

GROUP COUNTS

	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7	GROUP 8	TOTAL
NUMBER	23.	11.	86.	83.	53.	41.	63.	116.	476.

MEANS

	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7	GROUP 8	TOTAL
PUPIL28	2.95652	4.00000	4.00000	4.00000	4.00000	4.00000	4.00000	4.00000	3.94958
FACTOR1	3.59130	3.03636	3.81628	3.68193	3.86038	3.00000	3.92063	3.66034	3.67437
FACTOR2	4.29348	9.02273	4.07558	2.95181	3.85377	2.23171	4.33730	3.63793	3.74895
FACTOR3	3.18478	3.50000	3.16279	3.33735	3.83019	3.25610	3.50794	3.21336	3.34244
FACTOR4	3.76087	3.90909	3.95349	3.22289	3.94340	3.58537	3.46825	3.96121	3.72059
FACTOR5	3.39130	3.72727	3.97093	3.15060	3.47170	3.35366	3.91270	3.05603	3.45483
FACTOR6	3.52217	1.78636	3.71744	3.32554	3.25792	2.03122	3.54048	3.67983	3.36605
FACTOR7	2.72522	1.33273	2.55035	2.42157	2.66094	2.09732	3.50302	2.64638	2.63099
FACTOR9	3.43261	3.42182	3.60733	3.11687	3.79755	3.03293	2.79381	3.54802	3.35866

STANDARD DEVIATIONS

	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7	GROUP 8	TOTAL
PUPIL28	.20851	0	0	0	0	0	0	0	.22845
FACTOR1	.61932	.28026	.19455	.22747	.14457	.41473	.14609	.23475	.36421
FACTOR2	1.68154	.36150	1.12202	1.29461	1.25138	1.18637	1.25576	1.34016	1.61758
FACTOR3	.75082	.40311	.17476	.31340	.16823	.28222	.31098	.21683	.35816
FACTOR4	.67200	.20226	.14608	.25004	.15994	.38572	.37965	.13434	.39625
FACTOR5	.67347	.46710	.11769	.28940	.43207	.43652	.19134	.15841	.47302
FACTOR6	.88083	.65424	.53329	.56511	1.03196	.85278	.59712	.42206	.82899
FACTOR7	1.04782	.81609	.77386	.75635	.83411	.56903	.54153	.69138	.83793
FACTOR9	.94410	.78955	.56875	.56962	.59199	.39223	.42176	.68118	.68020

WILKS LAMBDA (U-STATISTIC) AND UNIVARIATE F-RATIO WITH 7 AND 468 DEGREES OF FREEDOM

VARIABLE	WILKS LAMBDA	F
PUPIL28	.0386	1665.8614
FACTOR1	.5128	63.5146
FACTOR2	.6034	43.9369
FACTOR3	.6686	33.1431
FACTOR4	.4722	74.7176
FACTOR5	.4017	99.5871
FACTOR6	.6147	41.9078
FACTOR7	.7523	22.0103
FACTOR9	.7763	19.2637

The analysis presented in this table is based on group means. Factor 8 entered first because it reduced to a dichotomy.

ANALYSIS OF PUPIL AND PROGRAM CLUSTERS

Table 36 - Continued

WITHIN GROUPS CORRELATION MATRIX

	PUPIL28	FACTOR1	FACTOR2	FACTOR3	FACTOR4	FACTOR5	FACTOR6	FACTOR7	FACTOR9
PUPIL28	1.00000								
FACTOR1	.46612	1.00000							
FACTOR2	.12296	.23454	1.00000						
FACTOR3	.51019	.27989	.03912	1.00000					
FACTOR4	.47327	.37257	.10102	.43004	1.00000				
FACTOR5	.37422	.25756	.01242	.20300	.14706	1.00000			
FACTOR6	.25424	-.02601	.04422	.10501	.13777	.19667	1.00000		
FACTOR7	.17591	.11400	-.07274	.10807	.13898	.02955	.07430	1.00000	
FACTOR9	.26870	.21764	.23256	.11258	.10396	.08720	.02976	.05974	1.00000

ANALYSIS OF PUPIL AND PROGRAM CLUSTERS

Table 36 - Continued

- D I S C R I M I N A N T A N A L Y S I S -

ANALYSIS NUMBER 1

SOLUTION METHOD - DIRECT.

MAXIMUM NUMBER OF FUNCTIONS 2

PRIOR PROBABILITIES - BASED ON GROUP SIZE

GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7	GROUP 8
.04832	.02311	.18067	.17437	.11134	.08613	.13235	.24370

NUMBER REMOVED	EIGENVALUE	CANONICAL CORRELATION	PERCENT OF TRACE	WILKS LAMBDA	CHI-SQUARE	D.F.	SIGNIFICANCE
0	50.25313	.99020	87.9	.00032	3752.05275	63	0
1	2.37388	.83681	4.2	.01647	1915.54642	48	0
2	1.94452	.81264	3.4	.05557	1348.25308	35	0
3	1.51125	.77575	2.6	.16362	844.45800	24	0
4	.53922	.59188	.9	.41089	414.91457	15	0
5	.34349	.50564	.6	.63246	213.72332	8	0
6	.17688	.38768	.3	.84970	75.97797	3	.000

-70-

2 FUNCTIONS WILL BE USED IN REMAINING ANALYSES

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	1	2
PUPIL28	7.16580	-.08808
FACTOR1	-.45477	1.12425
FACTOR2	-.02481	-.30693
FACTOR3	-.46222	.37039
FACTOR4	-.41943	-1.25552
FACTOR5	-.41368	-.46955
FACTOR6	-.30295	.53344
FACTOR7	-.11919	.22777
FACTOR9	-.22992	-.23469

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	1	2
PUPIL28	31.3671	-.385543
FACTOR1	-1.24866	3.08685
FACTOR2	-.153370E-01	-.189746
FACTOR3	-1.29054	1.03415
FACTOR4	-1.05317	-3.15256
FACTOR5	-.874558	-.992675

ANALYSIS OF PUPIL AND PROGRAM CLUSTERS

Table 36 - Continued

FACTOR6	-.365446	.643487
FACTOR7	-.142245	.271819
FACTOR9	-.338018	-.345035
CONSTANT	-105.248	.871883

CENTROIDS OF GROUPS IN REDUCED SPACE

	1	2
GROUP 1	-30.93282	-.10327
GROUP 2	2.39778	-5.08251
GROUP 3	.73353	-.95730
GROUP 4	2.50743	2.02134
GROUP 5	.35570	.10723
GROUP 6	3.46300	-2.26741
GROUP 7	.91989	1.68541
GROUP 8	1.68182	-.39708

PREDICTION RESULTS -

ACTUAL GROUP NAME	CODE	N OF CASES	PREDICTED GROUP MEMBERSHIP GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7	GROUP 8
GROUP 1	1	23	23. 100.0 PCT	0 0 PCT	0 0 PCT	0 0 PCT	0 0 PCT	0 0 PCT	0 0 PCT	0 0 PCT
GROUP 2	2	11	0 0 PCT	9. 81.8 PCT	0 0 PCT	0 0 PCT	0 0 PCT	2. 18.2 PCT	0 0 PCT	0 0 PCT
GROUP 3	3	86	0 0 PCT	0 0 PCT	61. 70.9 PCT	0 0 PCT	6. 7.0 PCT	2. 2.3 PCT	2. 2.3 PCT	15. 17.4 PCT
GROUP 4	4	83	0 0 PCT	0 0 PCT	0 0 PCT	69. 83.1 PCT	0 0 PCT	0 0 PCT	3. 3.6 PCT	11. 13.3 PCT
GROUP 5	5	53	0 0 PCT	0 0 PCT	14. 26.4 PCT	1. 1.9 PCT	17. 32.1 PCT	0 0 PCT	9. 17.0 PCT	12. 22.6 PCT
GROUP 6	6	41	0 0 PCT	3. 7.3 PCT	0 0 PCT	1. 2.4 PCT	0 0 PCT	27. 65.9 PCT	0 0 PCT	10. 24.4 PCT
GROUP 7	7	63	0 0 PCT	0 0 PCT	0 0 PCT	16. 25.4 PCT	13. 20.6 PCT	0 0 PCT	28. 44.4 PCT	6. 9.5 PCT
GROUP 8	8	116	0 0 PCT	0 0 PCT	2. 1.7 PCT	3. 2.6 PCT	2. 1.7 PCT	4. 3.4 PCT	6. 5.2 PCT	99. 85.3 PCT

70.0 PERCENT OF KNOWN CASES CORRECTLY CLASSIFIED

CHI-SQUARE = 1436.778 SIGNIFICANCE = 0

Table 36 - Continued

TERRITORIAL MAP OF DISCRIMINANT SCORE 1 (HORIZONTAL) VS. DISCRIMINANT SCORE 2 (VERTICAL). • INDICATES A GROUP CENTROID.

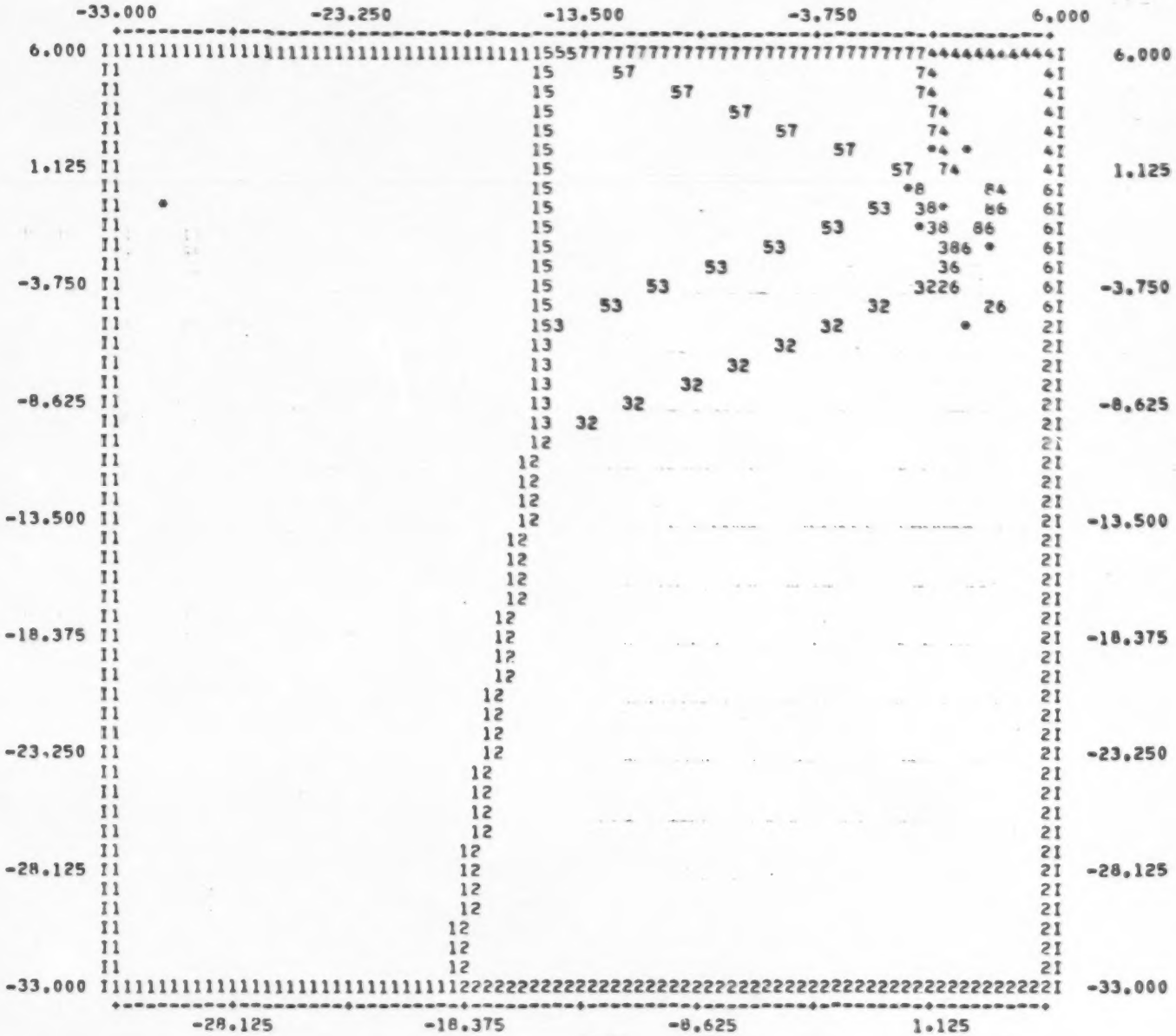


Table 37

Percentages of Groups Assigned to Clusters

PROGRAM CLUSTERS	GROUP	PUPIL CHARACTERISTIC CLUSTERS 1	2	3	4	5	6	7	8	TOTAL % Research Group	Verification Group
1	Research			0.4	2.1	0.8		2.3	0.8	6.5	
	Verification										
2	Research			3.8	3.4	4.0	2.5	3.8	9.7	27.1	
	Verification										
3	Research	0.8	0.8	0.6	1.9	0.4	1.1	0.2	1.9	7.8	
	Verification					0.5	0.5				1.0
4	Research			0.2	1.7			2.5	0.2	4.6	
	Verification				0.5			0.5	0.5		1.6
5	Research	0.2		2.3	4.6	1.5	1.5	1.9	2.3	14.3	
	Verification			0.5	3.1	1.0	1.6	2.6	1.6		10.4
6	Research	1.3		6.7	0.2	0.8	0.4	0.8	4.8	15.1	
	Verification		2.1	9.8	3.1	13.0	18.1	12.4	9.3		67.9
7	Research	0.4	1.5	3.8	2.9	2.3	2.9	1.1	4.4	19.3	
	Verification			0.5	1.0	1.0	5.2	2.6	2.6		13.0
8	Research	2.1		0.2	0.4	1.3	0.2	0.6	0.2	5.0	
	Verification		0.5	0.5		1.6	2.1	0.5	1.0		6.2
	Research Group	4.8	2.3	18.1	17.4	11.1	8.6	13.2	24.4		
	Verification Group		2.6	11.9	7.3	17.1	27.5	18.7	15.0		

were not placed in similar proportions in program clusters. For example, no pupils from the verification group appear in Program Clusters 1 and 2, while in the research group 6.5% and 27.1% respectively were placed in these clusters. Another large discrepancy was Program Cluster 6 where 67.9% of the verification group was placed; while 15.1% of the research group had similar program placement.

Pupil Characteristic Clusters matched better. While none of the verification group was in Cluster 1, Clusters 2, 3, 5 and 7 appeared fairly close together. Cluster 4 and 8 fell within 10% of each other, and Cluster 6, within 20%.

Proportions of pupils assigned to each cell varied from cell to cell. No attempt was made to describe statistically how close the match was. When one considers the sampling procedure and the dissimilarity in Program Cluster assignments, one can see that discrepancies are not beyond what might have been expected. One may question, then, whether or not equations developed on the research group should be applied to other groups.

To answer this question one must consider, first, the goal of obtaining a group membership prediction. Getting such a membership prediction gives possible least restrictive placements which might be considered in light of pupil characteristics. Other information such as test data, psychological information, medical information, and parent preference will enter into a decision. Second, the purpose of such a prediction is important. The prediction is intended as a description of what types of programs other pupils with similar Pupil Characteristics have successful experiences; it is not intended to be a prescription.

If one sees such a prediction as a description of possible alternatives which must be examined in the light of other information, then the use of a prediction can be quite beneficial. Deriving this prediction is simple. The following section describes in detail how to obtain the prediction.

APPLICATION OF THE METHOD

In order to apply this method the following steps would be taken:

1. Fill out a placement survey.
2. Obtain total raw scores for each factor using the Profile Sheet provided.
3. Convert total raw scores to standard scores for each factor using the conversion tables provided. Enter the scaled scores on the Profile Sheet.
4. Sum the scaled scores for each of two functions. Use the Profile Sheet to assist obtaining sums.
5. Enter the Discriminant Map to determine group membership. Function 1 is plotted on the horizontal axis; Function 2 is plotted on the vertical.
6. Enter the Group Descriptor List to obtain the types of programs in which pupils with similar profiles have experienced success.

To fill out the placement Survey (pp. 76 & 77), circle the option to each item, and then enter the number which precedes the option on the line in front of the item. Now copy these numbers into the appropriate spaces on the Pupil Profile Sheet (p. 78). Obtain a total score for each factor by summing the Item Scores. Next use the Standard Score Conversion in Table 8 (p. 80) for each Function for each Factor. Now enter the Function Scores onto the second Profile Sheet (p.79). Sum the scaled scores as directed on the profile sheet. Now use the Group Membership Map (p.81) to determine the group membership. Last, based on group membership which is actually a Pupil Cluster prediction use the Group Descriptor List (p. 82) to determine possible Program Cluster placement. Elements included in each Program Cluster are described on the Group Descriptor List. An example of a completed Placement Survey appears on page 83, and completed Pupil Profiles appear on pages 84 and 85.

APPLIED
RESEARCH
CONSULTANTS

P.O. Box 145, Rancho Cordova, CA 95670

Name_____ Date_____

LEAST RESTRICTIVE ENVIRONMENT STUDY

Directions: Please identify the pupil by age, gender and grade level.

1. Age _____

2. Gender: Female _____
   Male _____

3. Grave Level: Prschool ____
   Kindergarten-Primary ____
   Intermediate ____
   Junior High School ____
   Senior High School ____

+ + + + + + + + +

PUPIL CHARACTERISTIC DESCRIPTION

Directions: Please select the one most appropriate statement which describes the characteristics exhibited by the pupil.

SECTION I: INSTRUCTIONAL PERFORMANCE

_____ 1. Pupil's instructional grade level in Reading:
(1) Pre-Readiness (6) 4 (11) 9
(2) Readiness (7) 5 (12) 10
(3) 1 (8) 6 (13) 11
(4) 2 (9) 7 (14) 12
(5) 3 (10) 8 (15) Not Applicable

_____ 2. Pupil's instructional grade level in Arithmetic?
(1) Pre-Readiness (6) 4 (11) 9
(2) Readiness (7) 5 (12) 10
(3) 1 (8) 6 (13) 11
(4) 2 (9) 7 (14) 12
(5) 3 (10) 8 (15) Not Applicable

_____ 3. Pupil's instructional level in Handwriting?
(1) Pre-Readiness (4) Cursive
(2) Readiness (5) Not Applicable
(3) Manuscript

_____ 4. Pupil's instructional mode in Reading (Visual Activity)?
(5) Ordinary print without correction
(4) Large print without correction
(3) Large print with correction
(2) Braille
(1) Not Applicable

_____ 5. Pupil's instructional mode in Listening (Auditory Activity)?
(5) Normal conversation without hearing aid
(4) Conversation speech at 3-5 ft. with hearing aid
(3) Loud voice with hearing aid
(2) Loud environmental sounds with hearing aid
(1) Not Applicable

SECTION II: COMMUNICATION PERFORMANCE

_____ 6. Pupil's verbal expressive language level?
(4) Can be understood by anyone
(3) Can be understood by some unfamiliar listeners
(2) Can be understood only by familiar listeners
(1) Cannot be understood by others

_____ 7. Pupil imitates speech sounds.
(4) Sentences (2) Sounds
(3) Words (1) Cannot

_____ 8. Pupil speaks in ___ sentences.
(4) Complex (2) Incomplete
(3) Short Complete (1) Cannot

_____ 9. Pupil's primary expressive communication mode:
(4) Normal verbal expression
(3) Expression approaches for hearing impaired (manual, oral, total)
(2) Gestures devised by pupil
(1) Doesn't communicate

SECTION III: PERSONAL ADJUSTMENT

(Rate this section as if the pupil were receiving minimal adult supervision)

____	10.	Pupil's personality orientation:	(4) Adequate (3) Aggressive	(2) Passive/Aggressive (1) Withdrawn
____	11.	Socializing with other pupils in the special education class:	(4) Excellent (3) Good	(2) Fair (1) Poor
____	12.	Socializing with other pupils outside the special education class:	(4) Excellent (3) Good	(2) Fair (1) Poor
____	13.	Socializing with adults in the school:	(4) Excellent (3) Good	(2) Fair (1) Poor
____	14.	Response to orders expressed by adults in the school:	(4) Excellent (3) Good	(2) Fair (1) Poor
____	15.	Completion of assignments required in the special education class:	(5) Excellent (4) Good (3) Fair	(2) Poor (1) Not Applicable
____	16.	Completion of assignments required outside the special education class:	(5) Excellent (4) Good (3) Fair	(2) Poor (1) Not Applicable
____	17.	Behavior during school transportation:	(5) Excellent (4) Good (3) Fair	(2) Poor (1) Not Applicable
____	18.	Behavior during lunch:	(4) Excellent (3) Good	(2) Fair (1) Poor
____	19.	Behavior during recess:	(5) Excellent (4) Good (3) Fair	(2) Poor (1) Not Applicable
____	20.	Respect for property of others and adults in the school:	(4) Excellent (3) Good	(2) Fair (1) Poor
____	21.	Self-care: Dressing independently	(4) Completely (3) Completely except for tying shoes (2) Most clothes (1) Cannot	
____	22.	Self-care: Keeping body & clothing clean:	(4) Always (3) Sometimes	(2) Seldom (1) Never
____	23.	Self-care: Toileting	(4) Always (3) Sometimes	(2) Seldom (1) Never
____	24.	Self-care: Cleans up after activities:	(4) Always (3) Sometimes	(2) Seldom (1) Never
____	25.	Self-care: Puts things away without being reminded:	(4) Always (3) Sometimes	(2) Seldom (1) Never
____	26.	Self-care: Feeding independently:	(4) Never needs help, no difficulty (3) Needs help sometimes (2) Can, but difficult (1) Cannot	

SECTION IV: PHYSICAL PERFORMANCE

____	27.	Pupil's locomotion in the school setting:	(4) No assistance or prothesis necessary (3) Walker or crutches (2) Wheelchair (1) Immobile and must be carried
____	28.	Pupil's mobility level in the school setting:	(4) Familiar and unfamiliar places with own vision (3) Familiar and unfamiliar places with cane (2) Familiar places with cane (1) Needs sighted guide

PROFILE SHEET

Pupil's Name: _____ Date: _____

FACTOR 1

Item Score

15 _____

21 _____

22 _____

23 _____

26 _____

TOTAL=_____

Scaled Scores

Function One=_____

Function Two=_____

FACTOR 2

Item Score

1 _____

2 _____

3 _____

27_____

TOTAL=_____

Scaled Scores

Function One=_____

Function Two=_____

FACTOR 3

Item Score

11 _____

12 _____

13 _____

14 _____

TOTAL=_____

Scaled Scores

Function One=_____

Function Two=_____

FACTOR 4

Item Score

7 _____

9 _____

TOTAL=_____

Scaled Scores

Function One=_____

Function Two=_____

FACTOR 5

Item Score

24_____

25 _____

TOTAL= _____

Scaled Scores

Function One=_____

Function Two=_____

FACTOR 6

Item Score

4 _____

5 _____

10_____

TOTAL=_____

Scaled Scores

Function One=_____

Function Two=_____

FACTOR 7

Item Score

16 _____

18 _____

19 _____

TOTAL=_____

Scaled Scores

Function One=_____

Function Two=_____

FACTOR 8

Item Score

28 _____

TOTAL=_____

Scaled Scores

Function One=_____

Function Two=_____

FACTOR 9

Item Score

6 _____

8 _____

17 _____

TOTAL=_____

Scaled Scores

Function One=_____

Function Two=_____

PROFILE SHEET

	FUNCTION ONE	FUNCTION TWO
Factor 1		
Factor 2		
Factor 3		
Factor 4		
Factor 5		
Factor 6		
Factor 7		
Factor 8		
Factor 9		
Constant	-105.2	0.87
TOTAL SCALED SCORE		
Group Membership=		

If you have difficulty adding positive and negative numbers, get a total for the positives; then, get a total for the negatives. Subtract the smaller total from the larger total, and give the difference the sign of the larger.

You need to get a sum for the scaled scores of each factor and add the appropriate constant to that sum. This gives you a Total Scaled Score for each function.

Enter the Discriminant Map. Use Total Scaled Score for Function One to enter the horizontal and Total Scaled Score for Function Two to enter the vertical. Drop down to a point where the horizontal and vertical would cross; this is the pupil's location on the map.

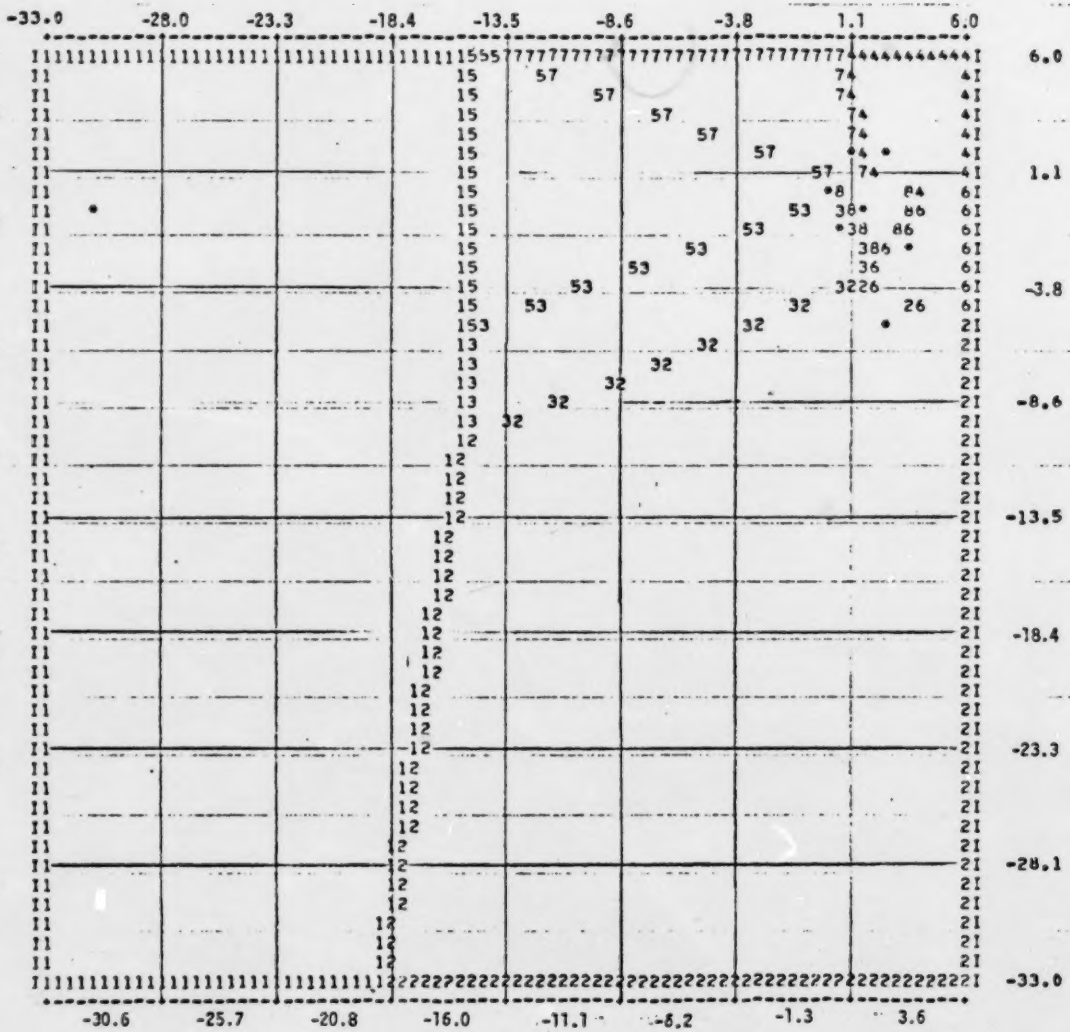
Group membership is indicated by the number which bounds the area enclosing the pupil's location.

Table 38

STANDARD SCORE CONVERSION

RPM TOTAL SCORE	FACTOR 1		FACTOR 2		FACTOR 3		FACTOR 4		FACTOR 5		FACTOR 6		FACTOR 7		FACTOR 8		FACTOR 9	
	Scaled Score 1	Scaled Score 2	Scaled Score 1	Scaled Score 2	Scaled Score 1	Scaled Score 2	Scaled Score 1	Scaled Score 2	Scaled Score 1	Scaled Score 2	Scaled Score 1	Scaled Score 2	Scaled Score 1	Scaled Score 2	Scaled Score 1	Scaled Score 2	Scaled Score 1	Scaled Score 2
39			-0.15	-1.85														
38			-0.14	-1.81														
37			-0.14	-1.76														
36			-0.14	-1.71														
35			-0.13	-1.66														
34			-0.13	-1.62														
33			-0.12	-1.57														
32			-0.12	-1.52														
31			-0.12	-1.47														
30			-0.11	-1.43														
29			-0.11	-1.38														
28			-0.11	-1.33														
27			-0.10	-1.28														
26			-0.10	-1.24														
25			-0.09	-1.19														
24			-0.09	-1.14														
23			-0.09	-1.09														
22			-0.08	-1.05														
21	-5.25	12.92	-0.08	-1.00														
20	-5.00	12.35	-0.08	-0.95														
19	-4.75	11.73	-0.07	-0.90														
18	-4.50	11.11	-0.07	-0.86														
17	-4.24	10.50	-0.06	-0.81														
16	-4.00	9.88	-0.06	-0.76	-5.16	4.14												
15	-3.75	9.26	-0.06	-0.71	-4.84	3.88												
14	-3.49	8.64	-0.05	-0.67	-4.52	3.62					-1.70	3.00	-0.66	1.27				
13	-3.25	8.02	-0.05	-0.62	-4.19	3.36					-1.58	2.79	-0.62	1.18			-1.46	-1.50
12	-2.99	7.41	-0.05	-0.57	-3.87	3.10					-1.46	2.57	-0.57	1.09			-1.35	-1.38
11	-2.75	6.79	-0.04	-0.52	-3.55	2.84					-1.34	2.36	-0.52	1.00			-1.24	-1.27
10	-2.50	6.17	-0.04	-0.48	-3.23	2.59					-1.22	2.14	-0.47	0.91			-1.13	-1.15
9	-2.25	5.56	-0.03	-0.43	-2.90	2.33					-1.10	1.93	-0.43	0.82			-1.01	-1.04
8	-2.00	4.94	-0.03	-0.38	-2.58	2.07	-4.21	-12.61	-3.50	-3.97	-0.97	1.71	-0.38	0.73			-0.90	-0.92
7	-1.75	4.32	-0.03	-0.33	-2.26	1.81	-3.69	-11.04	-3.06	-3.48	-0.85	1.50	-0.33	0.63			-0.79	-0.80
6	-1.50	3.70	-0.02	-0.29	-1.94	1.55	-3.16	-9.46	-2.63	-2.98	-0.73	1.29	-0.28	0.54			-0.68	-0.69
5	-1.25	3.09	-0.02	-0.24	-1.61	1.29	-2.63	-7.88	-2.19	-2.48	-0.60	1.07	-0.24	0.45			-0.56	-0.58
4	-1.00	2.46	-0.02	-0.19	-1.29	1.03	-2.11	-6.31	-1.75	-1.99	-0.49	0.86	-0.19	0.36	125.47	-1.54	-0.45	-0.46
3	-0.75	1.85	-0.01	-0.14	-0.97	0.78	-1.58	-4.73	-1.31	-1.49	-0.37	0.64	-0.14	0.27	94.10	-1.16	-0.34	-0.35
2	-0.50	1.23	-0.01	-0.10	-0.65	0.52	-1.05	-3.15	-0.88	-0.99	-0.24	0.43	-0.09	0.18	62.73	-0.77	-0.23	-0.23
1	-0.25	0.62	-0.00	-0.05	-0.32	0.26	-0.53	-1.58	-0.44	-0.50	-0.12	0.21	-0.05	0.09	31.37	-0.39	-0.11	-0.12

TERRITORIAL MAP OF DISCRIMINANT SCORE 1 (HORIZONTAL) VS. DISCRIMINANT SCORE 2 (VERTICAL). * INDICATES A GROUP CENTROID.



GROUP DESCRIPTOR LIST

Program Cluster 1
- Special School Placement
- Supportive Services: Speech & Language Therapist
  Social Worker
  Psychologist
  Psychiatrist
  Audiologist
  Other
- Fewer Teacher Aides than Average
- More Hours per Day in Special Education Programs

Program Cluster 2
- Regular School Placement

Program Cluster 3
- Special Education Classroom
- Special School
- Supportive Services: Physical Therapist
  Occupational Therapist
  Mobility & Orientation
- More Volunteers than Average
- More Hours per Day in Special Education Programs
- More Days per Year in School
- Little Time per Day with Non-Special Education Students

Program Cluster 4
- Special School Placement
- Supportive Services: Speech & Language Therapist
  Psychologist
  Psychiatrist
  Audiologist
- Larger Number of Teachers Assigned to Program
- Few Teacher Aides
- Larger Number of Pupils in Program
- More Hours a Day in School
- More Hours a Day in Special Education Program
  (These students are probably high school aged.)

Program Cluster 5
- Supportive Services: Psychologist
  Audiologist
  Other

Program Cluster 6
- Special Education Classroom & Resource Specialist Program
- Regular School
- Little Use of Special Services
- Larger Number of Pupils in Program

Program Cluster 7
- Special School
- Few Supportive Services
- Less Amount of Time per Day with Non-Special Education Pupils

Program Cluster 8
- Supportive Services: Mobility & Orientation
- More Hours per Day in Special Education Programs
- Fewer Days per Year in School

Placement Summary

If Pupil Cluster 1 is predicted, placement in Program Clusters 3, 6, or 8.

If Pupil Cluster 2 is predicted, placement in Program Clusters 3 or 7.

If Pupil Cluster 3 is predicted, placement in Program Clusters 2, 6, or 7.

If Pupil Cluster 4 is predicted, placement in Program Clusters 2, 5, or 7.

If Pupil Cluster 5 is predicted, placement in Program Clusters 2 or 7.

If Pupil Cluster 6 is predicted, placement in Program Clusters 2, 5, or 7.

If Pupil Cluster 7 is predicted, placement in Program Clusters 1, 2, or 4.

If Pupil Cluster 8 is predicted, placement in Program Clusters 2, 6, or 7.

APPLIED RESEARCH CONSULTANTS

P.O. Box 145, Rancho Cordova, CA 95670

Name John Doe Date 8/1/78

LEAST RESTRICTIVE ENVIRONMENT STUDY

Directions: Please identify the pupil by age, gender and grade level.

1. Age 9.7
2. Gender: Female ___ Male ✓
3. Grave Level: Prschool ___ Kindergarten-Primary ✓ Intermediate ___ Junior High School ___ Senior High School ___

+ + + + + + + + +

PUPIL CHARACTERISTIC DESCRIPTION

Directions: Please select the one most appropriate statement which describes the characteristics exhibited by the pupil.

SECTION I: INSTRUCTIONAL PERFORMANCE

4 1. Pupil's instructional grade level in Reading:
(1) Pre-Readiness (6) 4 (11) 9
(2) Readiness (7) 5 (12) 10
(3) 1 (8) 6 (13) 11
(4) 2 (9) 7 (14) 12
(5) 3 (10) 8 (15) Not Applicable

5 2. Pupil's instructional grade level in Arithmetic?
(1) Pre-Readiness (6) 4 (11) 9
(2) Readiness (7) 5 (12) 10
(3) 1 (8) 6 (13) 11
(4) 2 (9) 7 (14) 12
(5) 3 (10) 8 (15) Not Applicable

3 3. Pupil's instructional level in Handwriting?
(1) Pre-Readiness (4) Cursive
(2) Readiness (5) Not Applicable
(3) Manuscript

5 4. Pupil's instructional mode in Reading (Visual Activity)?
(5) Ordinary print without correction
(4) Large print without correction
(3) Large print with correction
(2) Braille
(1) Not Applicable

5 5. Pupil's instructional mode in Listening (Auditory Activity)?
(5) Normal conversation without hearing aid
(4) Conversation speech at 3-5 ft. with hearing aid
(3) Loud voice with hearing aid
(2) Loud environmental sounds with hearing aid
(1) Not Applicable

SECTION II: COMMUNICATION PERFORMANCE

4 6. Pupil's verbal expressive language level?
(4) Can be understood by anyone
(3) Can be understood by some unfamiliar listeners
(2) Can be understood only by familiar listeners
(1) Cannot be understood by others

4 7. Pupil imitates speech sounds.
(4) Sentences (2) Sounds
(3) Words (1) Cannot

3 8. Pupil speaks in ___ sentences.
(4) Complex (2) Incomplete
(3) Short Complete (1) Cannot

4 9. Pupil's primary expressive communication mode:
(4) Normal verbal expression
(3) Expression approaches for hearing impaired (manual, oral, total)
(2) Gestures devised by pupil
(1) Doesn't communicate

SECTION III: PERSONAL ADJUSTMENT

(Rate this section as if the pupil were receiving minimal adult supervision)

4 10. Pupil's personality orientation:
(4) Adequate (2) Passive/Aggressive
(3) Aggressive (1) Withdrawn

2 11. Socializing with other pupils in the special education class:
(4) Excellent (2) Fair
(3) Good (1) Poor

2 12. Socializing with other pupils outside the special education class:
(4) Excellent (2) Fair
(3) Good (1) Poor

3 13. Socializing with adults in the school:
(4) Excellent (2) Fair
(3) Good (1) Poor

3 14. Response to orders expressed by adults in the school:
(4) Excellent (2) Fair
(3) Good (1) Poor

3 15. Completion of assignments required in the special education class:
(5) Excellent (2) Poor
(4) Good (1) Not Applicable
(3) Fair

1 16. Completion of assignments required outside the special education class:
(5) Excellent (2) Poor
(4) Good (1) Not Applicable
(3) Fair

1 17. Behavior during school transportation:
(5) Excellent (2) Poor
(4) Good (1) Not Applicable
(3) Fair

2 18. Behavior during lunch:
(4) Excellent (2) Fair
(3) Good (1) Poor

3 19. Behavior during recess:
(5) Excellent (2) Poor
(4) Good (1) Not Applicable
(3) Fair

3 20. Respect for property of others and adults in the school.
(4) Excellent (2) Fair
(3) Good (1) Poor

4 21. Self-care: Dressing independently
(4) Completely
(3) Completely except for tying shoes
(2) Most clothes
(1) Cannot

4 22. Self-care: Keeping body & clothing clean:
(4) Always (2) Seldom
(3) Sometimes (1) Never

4 23. Self-care: Toileting
(4) Always (2) Seldom
(3) Sometimes (1) Never

3 24. Self-care: Cleans up after activities:
(4) Always (2) Seldom
(3) Sometimes (1) Never

3 25. Self-care: Puts things away without being reminded:
(4) Always (2) Seldom
(3) Sometimes (1) Never

4 26. Self-care: Feeding independently:
(4) Never needs help, no difficulty
(3) Needs help sometimes
(2) Can, but difficult
(1) Cannot

SECTION IV: PHYSICAL PERFORMANCE

4 27. Pupil's locomotion in the school setting:
(4) No assistance or prothesis necessary
(3) Walker or crutches
(2) Wheelchair
(1) Immobile and must be carried

4 28. Pupil's mobility level in the school setting:
(4) Familiar and unfamiliar places with own vision
(3) Familiar and unfamiliar places with cane
(2) Familiar places with cane
(1) Needs sighted guide

PROFILE SHEET

Pupil's Name: John Doe Date: 8/1/78

FACTOR 1

Item	Score
15	3
21	4
22	4
23	4
26	4

TOTAL= 19

Scaled Scores
Function One= -4.75
Function Two= 11.73

FACTOR 2

Item	Score
1	4
2	5
3	3
27	4

TOTAL= 16

Scaled Scores
Function One= -0.06
Function Two= -0.76

FACTOR 3

Item	Score
11	2
12	2
13	3
14	3

TOTAL= 10

Scaled Scores
Function One= -3.23
Function Two= 2.59

FACTOR 4

Item	Score
7	4
9	4

TOTAL= 8

Scaled Scores
Function One= -4.21
Function Two= -12.61

FACTOR 5

Item	Score
24	3
25	3

TOTAL= 6

Scaled Scores
Function One= -2.63
Function Two= -2.98

FACTOR 6

Item	Score
4	5
5	5
10	4

TOTAL= 14

Scaled Scores
Function One= -1.70
Function Two= 3.00

FACTOR 7

Item	Score
16	1
18	2
19	3

TOTAL= 6

Scaled Scores
Function One= -0.28
Function Two= 0.54

FACTOR 8

Item	Score
28	4

TOTAL= 4

Scaled Scores
Function One= 125.47
Function Two= -1.54

FACTOR 9

Item	Score
6	4
8	3
17	1

TOTAL= 8

Scaled Scores
Function One= -0.90
Function Two= -0.92

PROFILE SHEET

	FUNCTION ONE	FUNCTION TWO
Factor 1	-4.75	11.73
Factor 2	-0.06	-0.76
Factor 3	-3.23	2.59
Factor 4	-4.21	-12.61
Factor 5	-2.63	-2.98
Factor 6	-1.70	3.00
Factor 7	-0.28	0.54
Factor 8	125.47	-1.54
Factor 9	-0.90	-0.92
Constant	-105.25	0.87
TOTAL SCALED SCORE	(2.46)	(-0.08)
Group Membership=	8	

If you have difficulty adding positive and negative numbers, get a total for the positives; then, get a total for the negatives. Subtract the smaller total from the larger total, and give the difference the sign of the larger.

You need to get a sum for the scaled scores of each factor and add the appropriate constant to that sum. This gives you a Total Scaled Score for each function.

Enter the Discriminant Map. Use Total Scaled Score for Function One to enter the horizontal and Total Scaled Score for Function Two to enter the vertical. Drop down to a point where the horizontal and vertical would cross; this is the pupil's location on the map.

Group membership is indicated by the number which bounds the area enclosing the pupil's location.

Program Clusters

2: Regular School

6: Special Ed Classroom
& Resource Specialist Program
Regular School
Little Use of Supportive Services
Larger Numbers of Pupils in Program

7: Special School
Few Supportive Services
Less Amount of Time
per Day with Non-
Special Education
Students

SUMMARY

As a result of this study a system for predicting program membership has been presented. In using this system, a set of possible least restrictive placements may be obtained. This set is intended as descriptive rather than prescriptive; that is, the set describes programs in which other pupils with similar characteristics have been successful. If the system is used as a means of obtaining options, then it can be facilitative in devising a program which places a student in a least restrictive educational environment.

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